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Current evidence indicates that the health care system is inaccessible to the majority of Indian villagers in the treatment of illness. Previous studies have been inconclusive regarding the use (or nonuse) of indigenous and cosmopolitan health services in such transitional pluralistic societies.

The purpose of this investigation was to determine if the household use of health care and the individual choice of care during certain illnesses differed according to demographic, socioeconomic, and cultural variables. Quantitative and qualitative data were obtained during interviews with 200 village women, several village men, and health care providers. The two villages were located in Coimbatore District, Tamil Nadu, India.

The private doctor was the preferred source of family health care in this rural area. However, differences were found between users and non-users of the midwife, the private doctor, and the government doctor with respect to the decision makers' ages and educational levels. Family health care decisions were most often made jointly by the husband and wife. Household use of care differed according to family income level and caste category. Private doctors were chosen more often by

middle caste, higher income families; whereas government care was selected by low caste, lower income families.

Individuals opted for a variety of indigenous and allopathic choices in the treatment of arthritis, but a majority chose private allopathic care over government care to treat respiratory illness. The choice of health care for either illness did not differ with respect to the individual's age, gender, or household status. However, those visiting private doctors had higher family incomes, while those choosing free government services had lower family incomes. Respondents perceived the private doctors to be accessible and the government doctors to be inaccessible, based on geographic location and office hours. The private doctor was chosen for efficacy of treatment and quality care; whereas the government doctor was selected out of financial exigency.

It is recommended that additional qualitative research focus on the preference of private care over government care. It is also suggested that grassroots public health projects offer a multidisciplinary approach to disease prevention and the provision of health services. Ideas for providing these village women with educational and leadership opportunities are also considered.

Factors Influencing Family Use of Health Care Services in Tamil Nadu (India) Villages

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FACTORS INFLUENCING FAMILY USE OF HEALTH CARE SERVICES IN TAMIL NADU (INDIA) VILLAGES

CHAPTER I

INTRODUCTION

Introduction to the Problem

There is considerable interest by those working in international and national health programs in both the theoretical and practical implications of research about health-seeking behavior. Although the inextricable and puzzling relationship between culture and illness has been convincingly demonstrated in past literature, contemporary researchers have yet to explain why biomedical science has not succeeded in eliminating certain illness patterns (Heggenhougen & Shore, 1986; Kleinman, 1980; Landy, 1977). The continuing presence of many illnesses despite effective technological means of eradication is a persistent dilemma with particularly devastating effects on populations in developing areas.

One manner of approaching this problem is to study the illness experience and subsequent health-seeking behavior of people in these nations. The "quest for therapy" (Janzen, 1978) has been viewed universally as a personally and socially adaptive response influenced by a number of factors (Foets, Berghmans, & Janssens, 1985). Individuals and families make choices about the treatment of illness, and the consequences of these choices affect the prevailing patterns of illness.

Because health care exists in a cultural context, most health care systems are pluralistic, reflecting the complexities of the cultural system. This pluralism is

common in developing nations where indigenous aspects of health care are being replaced or integrated with cosmopolitan health care (Good, 1987; Minocha, 1980; Stoner, 1985). Within pluralistic health care systems, people may utilize services exclusively, successively, or simultaneously from lay, folk, or professional sectors (Kleinman, 1980; Stoner, 1986). It is this plurality that enables a person to experiment with new therapies in search of an effective cure (Minocha, 1980).

The importance of studying preferences and utilization patterns is critical as researchers and policy makers evaluate progress toward the World Health Organization's goal, "Health for all by the year 2000" (United Nations Development Program, 1983). Nations such as India which are striving to meet this objective, have attempted to provide preventive and curative services that are accessible, affordable, and acceptable to the population as a whole. These programs are particularly directed at women and families in rural areas who suffer disproportionately from health problems (Govt. of India Planning Commission, 1984; United Nations, 1983; World Health Organization, 1980).

In India and other developing areas, women play a vital role within their families and communities as providers of health care. Although the role of women as health care providers is well documented, researchers have failed to ask them about their responsibilities in making health care decisions, and what opinions they have regarding health care needs (Charyulu & Reddy, 1987; Cosminsky, 1987). Additionally, even though the family has been shown to function as the chief source of information about health care, research regarding the family's behavior in illness is minimal (Kohn & White, 1976; Nichter, 1984).

Utilization studies in India and other areas have shown conflicting information about which variables, or combinations of variables are significant in explaining use (or non-use) of indigenous and cosmopolitan health care services. Historically,

such studies have reflected either cognitive (decision-making) or correlational (determinants) approaches. The cognitive approach has emphasized features of local health beliefs and the decision-making process using qualitative procedures. By contrast, correlational approaches have quantitatively analyzed socioeconomic or cultural aspects of the person seeking care or characteristics of the treatment facilities (Huss-Ashmore, 1984; Kroeger, 1983a). While each of the above approaches have contributed significant elements to the research process, they have not provided a comprehensive model capable of examining the wide variety of variables using both quantitative and qualitative measures.

More recent models have attempted to combine these efforts (Kohn & White, 1976; Kroeger, 1983a). The model used in this exploratory study was a modification of an international health care project and employed both approaches. The model organized independent variables into characteristics of the subject, characteristics of the illness, and characteristics of the health service. The dependent variable was choice of health service. Although the model reflected a correlational approach, it also accommodated cognitive aspects.

The shortcomings in previous research and deficiencies in meeting the international goal have been recognized by the Government of India and the state of Tamil Nadu. India has launched an aggressive primary health care program, which is spelled out in *The Approach to the Seventh Five-Year Plan, 1985-1990* as the "need to improve greatly the physical well-being of the people" through an "expansion and improvement in health care" (Government of India, Planning Commission, 1984, p. 2).

Although this program has made significant progress in improving health care for rural residents, current evidence indicates that the majority of people are not reached by indigenous or cosmopolitan elements of the rural health care system

and fail to have security against communicable diseases that can be easily eradicated (Dutta, 1986; Tamil Nadu State Planning Commission, n.d.). Continued population growth, poverty, scarcity of medical resources, problems of access, political, psychological, and social barriers are but a few of the problems that have impeded the progress toward "health for all" (Dutta, 1986; Nyrop, 1985; Posey, 1987).

Given these continuing health problems, it is important to study health care preferences and utilization patterns as reported by the people themselves. Given the multiplicity and plurality in beliefs and practices, how does the particular cultural setting influence choices about the treatment of illness? What socioeconomic, demographic, and cultural factors emerge as significant explanatory variables of health care use, or as constraints to the use of health services? (Bhardwaj, 1975; Dutta, 1986; Gesler, 1969; Kroeger, 1983b).

Purpose of the Study

The purpose of this study was twofold: (1) to examine selected personal and social variables that influenced the types of health services generally used by ill family members, and (2) to explain the differential choice of health services for particular illness episodes with respect to these variables. The study was conducted with women as proxies for families in two villages in the Coimbatore District, Tamil Nadu, India.

The objectives of the research were:

1) To review existing literature relating to culture and illness, medical pluralism, health care utilization in developing areas including women and health care, and the Indian health care system.

2) To describe the rural health care system that served the selected sample villages, including the availability and accessibility of health care services and personnel.
3) To determine if differences in the household use of health care services depended on demographic, socioeconomic, and cultural factors.
4) To determine if differences in the type of treatment chosen in particular illness episodes depended upon demographic, socioeconomic, and cultural variables.
5) To report attitudes of adult women regarding the available health care system's potential to meet their family's health care needs.

Hypotheses and Research Questions

Two general questions were considered in this study: (1) Which personal and social factors influenced household utilization of health care services? (2) Which personal and social factors influenced the treatment chosen by individuals who faced particular illnesses?

The following null hypotheses were tested.

1) There will be no significant differences in the household use of health services with respect to demographic variables. Demographic variables included age, gender, household status, and educational level (years of schooling) of the decision maker.
2) There will be no significant differences in the household use of health services with respect to socioeconomic variables. Socioeconomic variables included family income, occupation of household head, family caste category, and accessibility of health service.

3) There will be no significant differences in the type of health service used by individuals during particular illness episodes with respect to demographic variables. Demographic variables measured were gender, age, and household status of the ill person.
4) There will be no significant differences in the type of health service used by individuals during particular illness episodes with respect to socioeconomic variables. Socioeconomic variables included family income and costs of medical care.
5) There will be no significant differences in the type of health service used by individuals during particular illness episodes with respect to cultural variables. Cultural variables included type of illness, severity of illness, expected benefits of treatment, and appeal/quality of care.

Significance of the Study

A long-standing assumption by Indian health planners has been that the health status of the rural population will be enhanced by the building of an increased number of primary health centers/subcenters in rural areas and increasing the number of personnel assigned to these centers (Nichter, 1980; Tamil Nadu State Planning Commission, n.d.). However, despite the scarcity of health services in rural areas, studies have shown that these facilities have been underutilized (Rao, 1985). The question then arises: If health services targeted for high risk segments of the population are not being maximized, what is the reason for this underuse? (Colson, 1971; Nichter, 1984; Posey, 1987).

Health ministries influenced by the democratization of the health care movement are involved in "community participation," or the planning and implementation of programs intended to be responsive to the community (United Na-

tions, 1983). However, health planners have made assumptions about what a community's needs are without involving the people themselves in the process. Therefore, the study of how people use health services and make choices about treatment options is an aspect of "microanalysis at the grassroots level," and contributes to the process of "community diagnosis" (Nichter, 1984, p. 237).

There is a need to investigate blanket generalizations and assumptions made about the Indian health system (Minocha, 1980). For example, the system of modern medicine has been characterized as elitist, urban-oriented, hospital-based, and destructive to traditional health practices and culture (Dutta, 1986; Minocha, 1980). Because the Indian health care system is pluralistic, it is important to study the manner in which indigenous elements interact with biomedicine to solve current health problems.

Cross-cultural research of the health-seeking process facilitates the testing of formal theoretical models that reflect the integrated work of anthropologists and socio-medical researchers. This type of research combines quantitative correlations that describe population patterns and qualitative remarks to explain their existence (Stoner, 1985). The contributions of these two approaches elucidate key factors in the choice of health care and add to our general understanding of human social behavior.

Finally, efforts to internationalize U.S. educational curriculums initiate a reciprocal process of understanding and assisting the world community. The increasing involvement of the United States in developing countries' nation-building efforts through human resource development projects requires that those involved be knowledgeable about health care and other social systems in these countries. In addition, the study of rural health care systems in other settings provides needed in-

formation to analyze whether or not the present U.S. health care scheme serves the needs of minority groups and foreign populations.

Scope and Limitations

This micro-study focused on the health-seeking behavior of the people in two villages. Therefore, the data were area-specific and were not expected to be generalizable over an entire region that is as culturally heterogeneous as India. The people in these villages may or may not have shared similar values, experiences, and intellectual orientations of people in other Indian villages (Nichter, 1984).

Any descriptive or analytical research reflects the viewpoint of the investigator. Even deliberate efforts to avoid ethnocentrism in research are often unsuccessful, and some bias has occurred. Hall (1976) has reminded us that an outsider cannot within "a matter of months or even years, adequately understand, explain, and describe a foreign culture" (p. 51), nor can a person easily transcend her/his own culture.

Finally, due to the necessity of narrowing the scope of the research to a manageable study, and because the study was cross-sectional rather than longitudinal, illness was treated as a static phenomenon. Although the health-seeking experience involves continual reevaluation, the data in this study did not reflect a longitudinal process (Kohn & White, 1976; Stoner, 1985).

Definition of terms

The following terms were defined for use in this study.

Allopathy or allopathic medicine: Scientifically validated form of medicine that treats illness with counteracting measures (Canary, 1983). In this study the

term is synonymous with biomedicine, cosmopolitan, modern, or Western medicine.

Ayurveda: A form of indigenous Indian medicine believed to be of divine origin, meaning the "science of life" and based on the holistic treatment of illness (Das, 1987; Egnor, 1983; Kurup, 1983).

Biomedicine: A form of medicine based on scientific principles of cellular biology (Engel, 1977).

Caste: A ranked social unit in Hindu communities. Membership is determined by birth and has historically been associated with a particular occupation (Lewis, 1958).

Cosmopolitan medicine: A form of scientific medicine that originated in urban areas of Western Europe that has been transplanted and adapted throughout the world; also termed allopathy, biomedicine.

Culture: The complex of human behavior, including knowledge, belief, art, law, morals, custom and any other capabilities and habits acquired by people as members of society (Logan & Hunt, 1978).

Disease: Deviation from an individual's normal physical condition (Gelb, 1984).

Endemic: An illness prevalent in a particular region or locality.

Ethnocentrism: An attitude that one's own race, nation, or culture is superior to all others.

Gender: The sex of the individual, either male or female.

Government doctor: A term that includes doctors, health care professionals who work at government health care facilities, such as primary health care centers and *Taluk* or district hospitals.

Head of household: One member of the family who is regarded as the authority in household matters. It is usually the husband or eldest male member, except in households where no adult male is present.

Healer shopping: The use of a second healer or doctor without referral from the first healer for a single episode of illness.

Health: A life force that encourages physical, mental, social, and spiritual well-being of an individual.

Health care decision maker: Household members who make decisions about the type of health care an ill family member will receive. This person may or may not be the head of the household.

Health care system: Pattern of social institutions and cultural traditions used to deliberately enhance health or treat illness (Dunn, 1976). This term was used interchangeably with medical system.

Illness: The personal, interpersonal, and cultural reaction to disease or discomfort (Fabrega, 1977; Kleinman, Eisenberg, & Good, 1978).

Indigenous medicine: A form of medical treatment native to a country or region.

Medical pluralism: The existence and use of many different health care alternatives which are used either exclusively, successively, or simultaneously during the course of illness (Stoner, 1986).

Medical system: See health care system.

Panchayat: Local unit of government in Indian villages comprised of elected members and directed by a leader or headman.

Primary health care (PHC): Concept developed by the World Health Organization and UNICEF referring to essential, low-cost, culturally acceptable, preventive and curative health care.

Private doctor: Doctors who practice at privately owned facilities and charge consulting fees.

Respondent: Adult women in the two sample villages who answered questions in the survey, and provided demographic, socioeconomic, and cultural information about the family.

Rupee: Monetary unit in India. At the time of the study (February-April, 1989), the exchange rate was Rs. 15 = U.S. $1.

Scheduled Castes: Low-caste Hindus who have been identified as socially and economically inferior to other Hindus, and are covered under a protective discrimination policy (Shariff, 1987).

Vaid: Practitioner of *Ayurvedic* medicine.

CHAPTER II
LITERATURE REVIEW

Individual health decisions and family patterns of health care use reflect complex interrelationships of many demographic, socioeconomic, and cultural variables. This study examined several aspects of health care use reported by South Indian village women. It both described the present health care system and analyzed personal and social variables that affect family utilization patterns and illness treatment decisions. The following literature review is comprehensive to provide an understanding of the many factors that influence this process. Due to the complexity of the health seeking process, this overview is divided into five sections.

The first section, Cultural Aspects of Illness and Health, depicts the relationship between illness and culture and provides an international overview of the basic concepts of culture, disease, illness, and health. The second section, Health Care/Medical Systems, contributes a conceptual framework and model for health care systems in medically pluralistic developing countries.

Because women are the primary respondents in this study, the third section, Women's Participation in Health Care, focuses on the roles of women as consumers and providers of health care in developing areas. The fourth section, Health Care Pluralism in India, then describes the multifaceted health care system in India. This section includes historical background for the current health care system, the primary health care plan, and the organization scheme for provision of health services in India.

The fifth section, Utilization Studies in India and Developing Areas, provides a comprehensive review of health care use in these areas. This final section examines and critiques different approaches that have been taken in utilization research in developing areas. It explains the theoretical framework of this study, including variables associated with health care use.

Cultural Aspects of Illness and Health

Culture, Illness, and Health

The publication of Paul's (1955) landmark book, *Health, Culture and Community*, and Polgar's (1962) major article, "Health and Human Behavior," clearly established in the literature the link between culture and illness. Illness patterns vary from one culture to another because they are inextricably related to cultural beliefs and behaviors (Heggenhougen & Shore, 1986; Wood, 1979). Not only has illness shaped human culture by requiring humans to adapt in the face of survival, but conversely, cultural beliefs and practices have been determining factors in the existence of particular illness patterns (Wood, 1979).

Although the connection between culture, behavior and illness is not recent knowledge, contemporary writers such as Landy (1977), Kleinman (1980), and Engel (1977) are credited with the "rediscovery" of this relationship (Heggenhougen & Shore, 1986). In the last decade researchers, social scientists, and policy makers have come to realize that the biomedical viewpoint predominating Western medical thinking cannot always explain human illness, and that modernization and biomedical science have often failed to eliminate destructive disease patterns (Kleinman et al., 1978; Capra, 1982). The continuing presence of many illnesses and diseases de-

spite effective technological means of eradication is a persistent dilemma with devastating effects on populations in developed and developing areas.

The departure from the predominant biomedical model as an explanatory tool for illness was proposed by Engel (1977), who maintained that "in all societies . . . the major criteria for identification of disease have always been behavioral, psychological, and social in nature" (p. 130). As he explained, and Capra (1982) agreed, the biomedical model posits that disease and illness can be fully accounted for by scientific principles of cellular biology. The human body is regarded as a machine that can be analyzed in terms of its parts, and disease is the "consequence of the breakdown of the machine" (Capra, 1982, p. 123). Although Engel (1977) did not disregard the value of scientific medicine as a partial explanation of disease, he concluded that scientific principles restricted to purely physical phenomena are not a sufficient condition for explanation of the human experience of illness.

Current literature generally views disease and illness as two discrete events. "Disease refers to the actual episode of "disease, or deviation from the individual's normal physical condition" (Gelb, 1984, p. 2), while the term "illness refers to the psychosocial experience and meaning of perceived disease" (Kleinman, 1980, p. 72). Disease represents physical changes in the body which can be identified, measured, and treated; whereas illness is the personal, interpersonal, and cultural reaction to disease or discomfort (Fabrega, 1977; Kleinman et al., 1978). Kleinman (1980) noted that disease affects individuals; but illness, because it involves secondary personal and social responses, most often affects the family, social network, and even the community.

The medical historian Sigerist (1977) explained that although each society defines the "sick person" role differently, common in all cultures is the belief that illness means an "interruption in the rhythm of life" (p. 389). Illness appears unex-

pectedly, isolates, and prevents people from reaching full development (Sigerest, 1977; Wood, 1979). Sontag (1979) quipped, "illness is the night-side of life, a more onerous citizenship" from which none of us escapes (p. 3).

The use of the term illness rather than disease has enabled researchers to study illness and health seeking behavior in diverse cultures and situations. For example, Paul (1955) observed the differences between disease and illness and the effect culture has on the prevalence of illness in his public health studies. In his preventive health work, he urged health workers to "think like a mosquito" (p. 133), understand how the community is organized, and realize that cultural codes rather than scientific principles govern behavior. Because infection from a disease agent does not always cause illness, other factors in this "causal network" must be considered, including "cultural beliefs and practices" (Nations, 1986, p. 990).

Just as it is important to understand that illness is a culturally derived notion, it is also important to define health as it is used in this study.

New Definitions of Health

The concept of health has been variously defined. For the last few decades health, in medical terms, has been identified as the absence of disease. It is only relatively recently that the social, economic, cultural, religious and political aspects of health have been integrated into the definition (Zabolai-Csekme, 1983). The World Health Organization (WHO) was heralded for its leadership in redefining the term in 1947. The WHO stated that "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Ataudo, 1985, p. 1345). Building upon this concept is the more recent view that health is a "measure of the effectiveness with which human groups, combining biological and cultural resources, adapt to their environments" (Lieban, 1977, p. 13).

Landy (1977) said that any definition of health is necessarily a relative term because no human is even completely healthy.

Rittman (1987) believed that the definition of health must also include the comprehension of death. He defined health as the cultural expression by individuals and the community as they come to terms with death, suffering, and disease.

Thus, health remains the object of much searching and the definition is still evolving. Common to all of these statements, however, is the implication that health is not the absence of illness, but rather a life force that encourages physical, mental, social, and spiritual well-being of an individual. It is a concept, a value, a lifestyle, and a process embedded in the cultural environment (Ataudo, 1985; Lieban, 1977, Zabolai-Csekme, 1983).

Concepts of Culture

Understanding the concept of culture is therefore helpful in studying health care use as a response to illness. The entire experience of illness, including perception, presentation of symptoms, disease labeling, seeking and obtaining medical care, and compliance of medical regimen, are culturally constructed (Fabrega, 1979; Kleinman et al., 1978). Because individuals in each society learn "approved" ways of being ill, it is not surprising that there are cross-cultural variations in how disorders are defined and treated (Kleinman et al., 1978).

Culture has been identified as the "complex whole which includes knowledge, belief, art, law, morals, custom and any other capabilities and habits acquired by man as members of society" (Logan & Hunt, 1978, p. xiv). Culture includes virtually all of the observed behavior of human beings, including our language, symbolism and technological accomplishments (Hall, 1976). Hall elaborated, "culture directs the organization of the psyche, which . . . has a profound effect upon the

ways people look at things, behave politically, make decisions, organize their lives, and . . . how they think" (p. 212). Each culture has its own way of organizing experience that may seem odd to an outsider, but cultural classifications are seldom random or capricious. Rather, the patterning of culture occurs systematically, unconsciously, and pervasively to such an extent that the participants are unaware of the process (Hall, 1976; Paul, 1955).

Hall (1976) and Paul (1955) have reminded us that although culture is bound by hidden rules and assumptions that govern us and make us resistant to change, the culture of any group is subject to constant change. With or without stimulation from the outside, culture is gradually altered by a succession of minor but cumulative modifications which may affect the health of certain populations (Paul, 1955). Dietary customs, child care patterns, religious practices, migration patterns, agricultural techniques, kinship relations, and traditional medical treatments are several cultural characteristics that have been implicated in the historical patterning of illnesses. A few prominent studies demonstrated that the nature and severity of illness are determined by a complex interaction of many variables.

Effects of Cultural Change on Illness and Health

Neel's (1977) classic study described the effect a measles epidemic had on a native Indian population who were infected by a group of (outsider) Brazilians. Even though the native people were immediately immunized, the disease spread rapidly to other villages, infecting whole communities and causing many deaths. The high rate of illness and death, however, was not attributed to the virulence of the disease agent, but rather to the total collapse of village life, which left the people without care.

Wood (1979) and Nations (1986) illustrated how agricultural practices, social, and economic conditions continue to be major stumbling blocks in the eradication of malaria. The felling of forests, establishment of permanent settlements, cultivation of different crops, and development of resistant strains of vectors have accelerated disease transmission. Although the technological methods of eradication are available, cultural beliefs about mosquito control have prevented some susceptible groups from adopting malaria-prevention practices.

In some cultural groups, certain dietary practices were directly linked to malnutrition and disease in females, but not in males, due to the beliefs about the food itself or to eating patterns proscribed by social norms (Chen, Huq, & D'Souza, 1981; Das Gupta, 1987). In societies where women and children are not considered to be economically productive, they may be served after the men and boys have eaten (Hamilton, Popkin, & Spicer, 1984). Also, higher death rates of females have been attributed to son preference in care of children and greater utilization of health services by males (Chen et al., 1981; Das Gupta, 1987; Isely, 1988).

The effects of cultural change on illness patterns have often been associated with contact with Western culture. It is widely acknowledged that certain lifestyles associated with highly industrialized societies directly lead to illness (Heggenhougen & Shore, 1986; Logan & Hunt, 1978). Although many behavioral practices leading to illness are a matter of personal choice, many are inherent in a society's lifestyle. For example, chronic and degenerative diseases such as heart disease, cancer, diabetes, or "diseases of civilization," are closely related to psychological stress, high fat diets, excessive alcohol, and sedentary living. (Capra, 1982; Heggenhougen & Shore, 1986). In addition, even within highly modernized populations such as the Japanese-Americans, higher rates of coronary heart disease are associated with

those of the groups who are more acculturated to American ways (Heggenhougen & Shore, 1986).

Not all cultural change has caused illness. Certain aspects of cultural change have had beneficial effects. Several examples from recent public health endeavors illustrate how this might happen. Although China is still poorly developed technologically, the health system has been quite successful in improving health status (indicated by lowered infant mortality, lowered age-specific death rates, and increase in life expectancy), reducing illness, lowering population growth, and improving nutrition and sanitation. Sidel and Sidel (1975) have explained that the changes initiated during the Cultural Revolution, including the "barefoot doctor" approach to community health care and disease-reduction campaigns, were successful because the efforts were compatible with cultural norms.

Another example, the worldwide GOBI (growth monitoring, oral rehydration therapy, breast feeding education/contraception, and immunization) strategy in Child Survival programs, has demonstrated that cultural sensitivity, involvement of the primary care giver, and acceptance by the leaders of the household and community have been essential to a program's success. Although the elements of GOBI are universal, each community effort must be tailored to the participants (National Council for International Health, 1986).

These studies, diverse as they may be, demonstrate that cultural beliefs and lifestyles influence illness patterns and health seeking behavior. As health seeking behavior often involves the use of the health care system, the next section examines this topic.

Health Care/Medical Systems

Concepts of Health Care/Medical Systems

A health care system serves as a framework to effectively deal with illness. Dunn (1976) defined a medical system as "the pattern of social institutions and cultural traditions that evolves from deliberate behavior to enhance health" (p. 135). It includes beliefs about health and the causes of illness; norms governing choice and evaluation of treatment; occupational roles, role relationships, and institutional structures (Kleinman, 1980; Leslie, 1976a).

Medical systems function as social systems that structure the experience of illness (Good, 1987; Kleinman, 1973). They are a product of history and exist within a certain environmental and cultural context (Capra, 1982; Polunin, 1976). As cultural changes occur, the health care system is modified by these new economic, philosophical, and religious influences (Capra, 1982).

Although many scholars interchange the terms medical and health care systems, Minocha (1980) distinguished between medical and health activities. Deliberate medical tasks, such as medical treatment and immunizations programs constitute medical interventions. Other health-enhancing activities such as provision of safe drinking water, nutritional programs, and non-medical interventions are considered health care services. Rittman (1987) believes there is a difference: "Medicine is nothing other than a treatment of disease and certainly never 'health care' (p. 8)."

While it may be important to discriminate between these terms when referring to specific services available to the people, the terms "medical" and "health care" systems often refer to the same cultural concept, one which is inclusive of both

medical and health activities (Good, 1987; Kleinman, 1980). For this reason these terms are used interchangeably in this study.

Although the term "system" is widely used and accepted, Kleinman (1980) reminded us that the health care system is a concept, not an entity; it is a conceptual model held by the researchers and scholars in explaining how people in a particular setting think about and respond to health-related events. Staiano (1986) cautioned that it is the researcher's desire to report and analyze data in a consistent and coherent manner that has led to use of the term medical system as something that may be separated out from other aspects of culture. It is clear that illness is never a discrete category that can be isolated and treated outside of its social, cultural, and political contexts. Moreover, a health care or medical system is not singular and unchanging, and it is much more diverse than is often recognized: "A religious system is often hard to separate from a medical one" (Stoner, 1986, p. 47). Because health care must be studied in context, Kleinman (1980) has advanced the view, and Stoner (1986) and Good (1987) have agreed, that health care systems are better examined as local cultural systems composed of three overlapping parts--the popular, professional, and folk sectors.

Structure of Health Care Systems

Kleinman's (1980) model can be applied to research in developed and developing societies, and is particularly suited to study societies that have written and oral healing traditions. This model includes the popular sector, the professional sector, and the folk sector (Figure 2.1).

Popular Sector

The popular sector of health care can be viewed as a matrix of several levels including the individual, family, social network, and community beliefs and

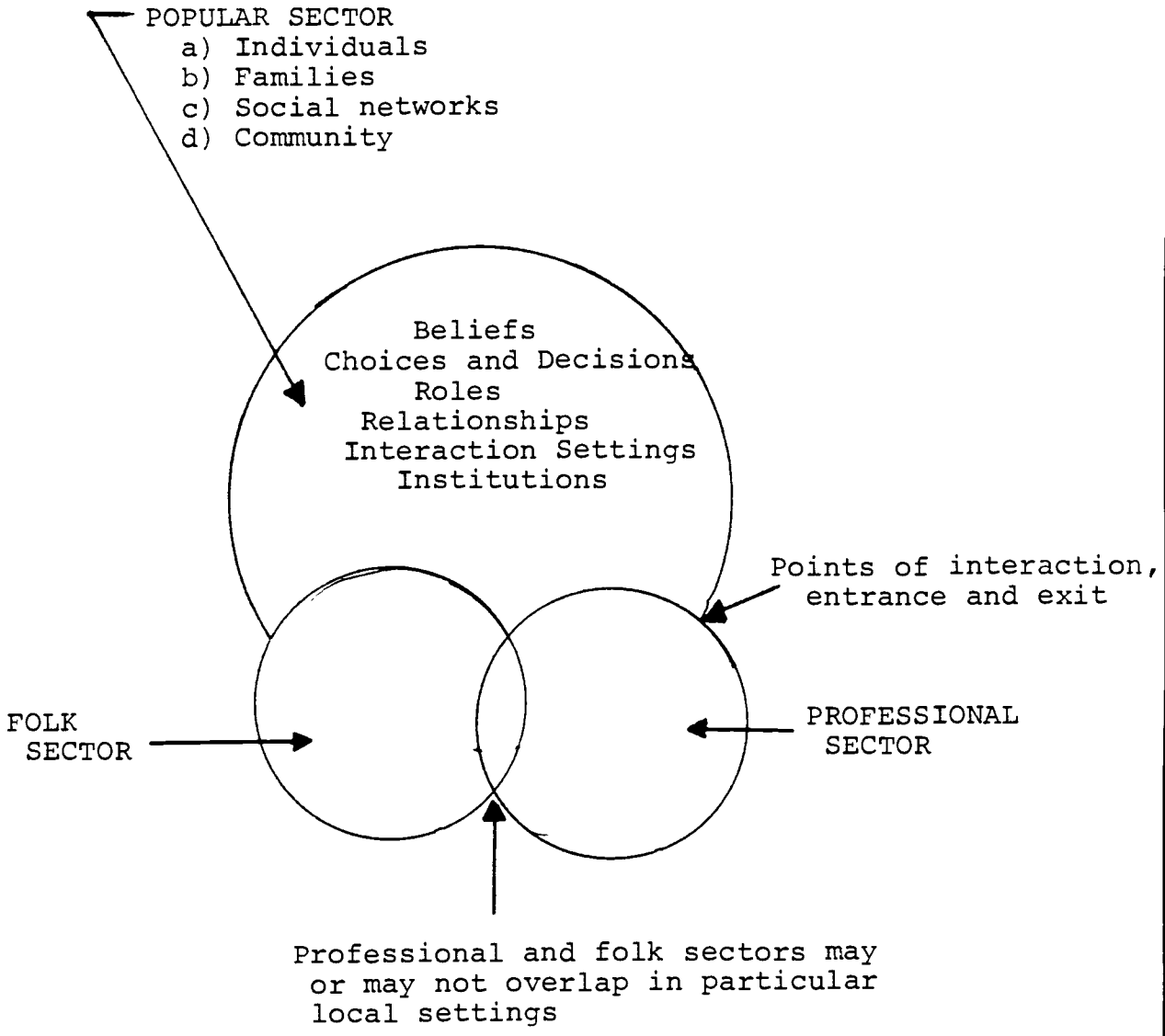

Figure 2.1 Health Care System Sectors.
Adapted from Kleinman (1980).

activities. It is the lay, non-professional, non-specialist, popular culture arena in which illness is first defined and health care activities initiated. Staiano (1986) used the term "lay therapeutic resources" to describe the popular sector. It is in this sphere that sick people activate their health care by deciding when and whom to consult (if at all), whether or not to comply with the treatment, when to switch between treatment alternatives, and whether or not care is effective and acceptable.

Although the popular sphere of health care is the largest part of any system, it is seldom studied (Kleinman, 1980). Although it is known that in development areas, the family functions as the chief source of information about health care, research regarding the family's behavior during illness is minimal (Kleinman, 1980; Nichter, 1984; Parker, Shah, Alexander, & Heumann, 1979). Further, while self-treatment for the individual and family has been studied in the United States and Western Europe, it has been neglected in cross-cultural studies, even though it is the first and most commonly used intervention worldwide. Kleinman (1980) estimated that 70 to 90 percent of all illness episodes are managed within the popular sector.

In the popular sector, individuals first encounter disease within the family. The sick person and family then either disregard or validate the sick person's role, initiate self-therapy, or consult with friends, relatives, and lay experts. Should they decide to move outside the popular sector, they can enter professional or folk sectors which also offer a range of treatment alternatives.

Professional Sector

A second sector of local health care systems is the professional sector, which includes the organized healing professions. In many societies, this refers primarily to professionals who practice biomedicine, which is variously labeled cosmopolitan medicine, allopathy, Western medicine, English medicine, or doctor medicine

(Canary, 1983; Dunn, 1976; Leslie, 1976). In this study the terms allopathy, biomedicine, and cosmopolitan medicine are used.

Allopathy or allopathic medicine advocates treating illness with counteracting measures to stabilize the patient and aid in the healing process (Canary, 1983). In principle, allopathic practitioners base their practices on scientifically validated methods, but not all allopathic medical practitioners are trained in biomedical principles. Villagers as well as medical personnel now associate the term with the use of antibiotics, injections, and medical technology.

The word cosmopolitan conveys the notion that it is worldwide rather than geographically limited in scope. Dunn (1976) explained that although cosmopolitan medicine originated in urban areas of Western European nations along with the acceptance of the biomedical model, it has now been transplanted to most parts of the world, including rural areas. Peasants and tribal peoples as well as urban residents admire the technology of cosmopolitan medicine and are eager to adopt these techniques and drugs (Leslie, 1976).

The researcher has chosen to use the terms biomedicine, cosmopolitan medicine, or allopathy rather than "modern medicine," and indigenous rather than "traditional." In the past a popular distinction has been made between "traditional" pre-scientific medical practices and beliefs and "modern" biomedicine (Leslie, 1976). However, more recent research has shown that this dichotomy presents a falsely restricted view of the multiplicity of therapies existing within a society (Leslie, 1976; Stoner, 1986). Leslie explained that the term "modern medicine," when used in contrast to traditional medicine, implies that practitioners of traditional medicine are uniformly conservative and reject opportunities to acquire new knowledge. However, just the opposite has been found to be true, and even medical institutions labeled "traditional" have undergone considerable change in the last

century (Stoner, 1986). The term "scientific medicine" is also misleading in that it implies that other types of medicine are unscientific. However, Chinese, *Ayurvedic*, and Arabic medicine are also scientific in their rational use of theories to organize and interpret empirical observations (Leslie, 1976).

Many professionals who practice cosmopolitan and allopathic medicine have been trained in the biomedical method, take formal examinations, and are licensed. However, the professional sector also includes trained practitioners of formal indigenous medicine, such as Indian *Ayurvedic* or Chinese medicine (Dunn, 1976). Canary (1983) explains that worldwide, the group of indigenous practitioners is much larger than the group who practice cosmopolitan medicine. The two most developed systems of formal indigenous medicine are represented by traditional Chinese and Indian *Ayurvedic* practitioners. These two systems are formalized and have been recognized by their respective national governments (Canary, 1983; Tamil Nadu State Planning Commission, n.d.). Each has developed a large pharmacopeia and medical literature base, predoctoral and postdoctoral training facilities, and certification and registration requirements (Canary, 1983).

The differences that were once present between indigenous and cosmopolitan practitioners are fading, as practitioners of medicine adapt to the prevailing needs of the social system (Dunn, 1976). Even 13 years ago Taylor (1976) remarked that when we use the term "indigenous practitioner, we really [are] talking about indigenous practitioners of medicine, not practitioners of indigenous medicine" (p. 287).

Folk Sector

The folk sector overlaps the other two sectors of the local health care system. Folk medicine borrows from the professional sector, but relates more closely to the popular sector. In societies lacking professionalization, the folk sector and

the popular sector constitute the entire health care system (Kleinman, 1980). Folk medicine is frequently classified into sacred and secular parts, but this distinction is often obscured in practice (Kleinman, 1980). Many anthropological studies have given attention to the significant function folk medicine plays despite the existence of cosmopolitan and professionalized indigenous practices (Leslie, 1976b; Nichter, 1980; Staiano, 1986).

This sector includes non-professional, non-bureaucratic indigenous practitioners who are usually unspecialized and informally trained. This informal training may include "self-training following inspiration," or training by a person who professes healing arts (Dunn, 1976, p. 140). Folk practitioners are not licensed, but may receive their acceptance into the community by inheriting the practice from a family member or a master (Dunn, 1976; Gelb, 1984).

As people seek treatment for illness, it is not uncommon for them to choose health care from one or more sectors of the health system. Leslie (1977) claimed that most health care systems are pluralistic, because "medical systems of complex societies are at least as complex as the social systems and cultures of which they are a part" (p. 511). Good (1987) and Stoner (1986) provided evidence of medical pluralism in Japan, the United States, and East and West Germany. In developing countries, especially in Sri Lanka and China, and throughout Africa, Asia, and Latin America, pluralism is even more evident as indigenous systems of health care are being complemented or competitively replaced by extensions of the biomedical model (Good, 1987; Leslie, 1977).

Pluralism in Health Care

Medically pluralistic societies offer a variety of treatment options that health seekers may choose to utilize exclusively, successively, or simultaneously (Stoner,

1986). It is this plurality that enables a person to not only switch from one medical system to another but also to experiment with new therapies in the search for an effective cure (Minocha, 1980).

Plural health care systems exist where a single system is inadequate to serve health care needs. This may arise where people have different ideas of disease causation, various health problems, and utilize diverse therapies. Huss-Ashmore (1984) explained that while this may occur at some time in all societies, post-colonial societies are especially vulnerable due to increasing economic differentiation, and ethnic and political pluralities. The result is a highly heterogeneous social milieu, with assorted health problems and health care needs. The use of plural health care resources, therefore, reflects the economic and political plurality of the society in question and also the choices individuals make in seeking care (Antia, 1985; Huss-Ashmore, 1984).

In some cultures, the introduction of Western technology has led to a rejection of indigenous solutions. However, in general, the acceptance of cosmopolitan medicine has altered rather than eliminated indigenous practices in order to meet the health needs and desires of the society (Huss-Ashmore, 1984). When Leslie (1977) remarked about the Indian and Chinese health care systems, "professionalized indigenous medicine is not . . . isolated from cosmopolitan medicine" (p. 511), he meant that they exist in parallel and sometimes integrated forms, in medical theory as well as in health delivery practices.

Egnor (1983) suggested that pluralism in health care is a desirable condition because it permits the existence of treatment options particularly suited to local cultures. Cosminsky (1987) discussed the great variety of medical resources used by women workers on a plantation in Guatemala. In deciding which form of health care would be best for their family, these women chose from a complex of "home

treatment, folk curers, herbalists, midwives, spiritists, shamans" (p. 1164), as well as several biomedical alternatives such as public and private clinics, pharmacists, and physicians.

Nichter (1980) believed the eclectic practice of medicine in India allows villagers a choice of therapy based on "masala--mixed to the taste and pocket(book)" (p. 227). Villagers found it was to their advantage to choose between indigenous and cosmopolitan therapies, depending upon the effect desired and cost of the drugs.

Romanucci-Ross (1977) introduced the term "hierarchy of resort" to describe the pluralistic therapeutic process preferred by people in the Admiralty Islands. Whether cosmopolitan medicine ("European medicine") or magical treatment was chosen as therapy depended upon whether or not the first choice of therapy cured the illness. First choices usually involved indigenous medicine. The last resort, which was usually biomedicine, was reached as earlier choices were exhausted.

The once-held assumption that diverse health needs can be met solely by biomedicine has given way to more realistic goals. WHO has urged that biomedical opinion has recently begun to shift toward a more open stance regarding the validity and potential efficacy of elements of indigenous-based health care systems. Particularly in the context of primary health programs, the roles of indigenous practitioners and therapies are being seriously discussed and even incorporated into national health schemes (Foster, 1982). Given the reality that "for millions of people on the [African] continent, access to biomedical health care remains a remote, elusive prospect, Good (1987, p. 1) emphasized the importance of cooperation among practitioners of biomedicine and indigenous medicine to promote health care that is culturally appropriate, more accessible, and more effective that is currently

available without such collaboration. To this end, the WHO has stressed the need to view health and illness in a cultural context, to learn about the dynamics of community participation in health care programs, and to incorporate behavioral scientists into health research projects (Foster, 1982; Good, 1987).

Women's Participation in Health Care

Women act as consumers of medical care and are providers of health care at the family and community level (Cottingham, 1983; Zabolai-Csekme, 1980; WHO, 1980). The importance of recognizing women as consumers was stressed by Cottingham (1983) who observed that women are the largest groups of drug purchasers worldwide. Cosminsky (1987) found that Guatemalan women were relentless in purchasing medical care for themselves and family members, even when they had to sacrifice scarce household resources.

The role of women as consumers of health care is heightened by the special health needs women have as mothers and laborers. Particularly in developing areas, the constant stress of pregnancy, childbirth, and abortions causes malnutrition, chronic disease, fatigue, and loss of self-confidence (Cottingham, 1983; Zabolai-Csekme, 1980). Poor women, especially the elderly, refugees, and those who are heads of families, suffer frequent infectious diseases as well.

The family is the basic unit of self-reliance in health care, and in most societies it is the mother who is the first health care agent (WHO, 1980). Cottingham (1983) stated that,

> women have always been healers. They were the unlicensed doctors of western history, . . . the pharmacists cultivating healing herbs, and exchanging the secrets of their uses. They were called "wise women" by the people, witches or charlatans by the authorities. Medicine is part of our heritage as women, our history, our birthright. (p. 146)

Even though 70 to 90 percent of sickness is managed within the family, and women are the major health care providers in this domain, little research has been done to identify the roles women have in the lay health sector, and few efforts have been made to measure and evaluate the importance of women's services in family health care (Cosminsky, 1987; Zabalai-Csekme, 1980). Women's access to information about health as well as to resources for health care, particularly self-care, is therefore a crucial determinant of family health.

Within the community women are also important health care providers. In most countries the bulk of the health workers in the health care system at the community level are women (WHO, 1980). Traditional birth attendants or female relatives attend at least 50 percent of births, and in a few areas this may rise to 85 percent. Unfortunately, this knowledge of healing techniques and vast experience is rarely documented; women have been unable to vocalize the information they have acquired (Cottingham, 1983; Zabolai-Csekme, 1980).

Women's networks today provide the working organization of many community-level health programs. Examples include support groups for women during pregnancy and childbirth, women who attend classes regarding income-generating activities, or participation in primary health care programs (Madan, 1987; WHO, 1980). Other examples of community health projects in India, such as the Mandwa Project and the Jamkhed Project, portray the importance of utilizing village women to manage the majority of their community's health problems (Antia, 1985; Madan, 1987).

Even though women are the main agents of primary health care, they are rarely included in the decision-making process or work in positions of authority (Charyulu & Reddy, 1987; Zabolai-Csekme, 1980). Zabolai-Csekme said that,

> although it is often recognized that primary health care has to respond to the needs of people and that women have the most extensive awareness of these

> needs, their opinion is hardly ever solicited when health care programmes are being formulated. (p. II-21)

Madan (1987) supported the view that improvements in community health will come about only if the people (including women) are listened to, "not only because they can do certain things as well as anybody else, but also because their participation . . . is a pre-requisite for the success of actions initiated by others" (p. 619). It is particularly important to assess the role women have in health care decisions in pluralistic developing nations such as India where many factors affect these decisions.

Health Care Pluralism in India

The multifaceted structure of India's health care system is one factor that influences choice and use of care. Health care is delivered in modern hospitals and village huts and by licensed doctors or by unschooled village midwives. Although an organized system of health care does exist, it reflects the pluralistic economic, political and social climate of the nation.

Historical Perspective

Although India's present health system is criticized as elitist and incapable of meeting needs of the rural poor (Banerji, 1979; Dutta, 1986; Rao, 1985), this has not always been the case. From 250 B.C. to A.D. 300, India's health system was considered to be advanced in medical practice, preventive medicine, and sanitation principles (Banerji, 1979; Posey, 1987). During this period, Hindu and Islamic systems of medicine were enriched by Buddhist influence which fostered the building of public hospitals, promoted medical education, and developed pharmaceuticals (Posey, 1987). Later, around A.D. 1000, the Buddhist influence was superseded by Hinduism's caste orientation. The medical profession was associated with the

priestly upper-caste Brahmins. Because physical contact with lower caste people was considered to be spiritually polluting, public hospitals disappeared.

A new chapter in India's health care history opened with the arrival of the British East India Company in the 17th Century, and continued under the period of British influence and rule between 1759 and 1947. The British introduced allopathic medical care for British officers and their families. Indigenous forms of Indian medicine declined rapidly in prestige and competence, as British rulers and Indians working for the British government patronized the newly introduced cosmopolitan practices. The British made no effort to extend health care to the masses, except when epidemics forced them to do so (Banerji, 1979; Posey, 1987). In these situations, the British model was applied to alleviate vast problems of hunger, inadequate sanitation and water supplies, rampant communicable diseases, and high mortality rates (Posey, 1987).

In 1946, just prior to India's independence, a committee appointed by the British to develop a health care system for "British India" produced the "Bhore Report." In addition to the theme of democratization of health care, it emphasized the importance of prevention, delivery of care to rural areas, and provision of basic needs (e.g., nutrition, sanitation, safe water). However, the Bhore Report was not accepting of indigenous, non-biomedical medicine in the national scheme. After Independence, the Ministry of Health (representing the Government of India) adopted the position of the Bhore Report, thereby excluding indigenous practitioners from the official health plan (Jeffery, 1982). Although this position was vigorously contested by indigenous practitioners, unregistered practitioners, and others who were moved to the fringe of the new system (Jeffery, 1982), the political leadership stated that it was impossible to integrate the indigenous and cosmopolitan systems without causing chaos. Hence, even though the official policy of the Gov-

ernment of India has been to promote a revival of indigenous medicine (especially *ayurveda*), whether it was actually implemented is in question (Taylor, 1986). The result was that the leadership "paid lip service to the indigenous systems of medicine in order to gain popularity, while at the same time it vigorously expanded the western system of medicine" (Banerji, 1979, p. 517). Banerji has stated that excessive preoccupation of the leadership with the cosmopolitan system has led to the increase in urban "privilege-based class orientation of health services" (p. 516) and the neglect of rural health services.

In the early 1970s there was a resurgence of discussions concerning the inclusion of indigenous practitioners into the Indian health care scheme, because the primary health scheme serving rural areas was dismally inadequate (Banerji, 1979; Leslie, 1977). Although it was reported that rural populations preferred cosmopolitan medicine over indigenous medicine when it was available, the lack of availability and accessibility to cosmopolitan services and primary health care centers (which provided this type of service) meant that many villages were receiving no medical care at all (Banerji, 1979). At the same time, researchers discovered that many health needs in urban as well as rural areas were being met by practitioners of indigenous medicine despite the popularity of cosmopolitan medicine (Nichter, 1980; Leslie, 1977).

In the late 1970s the primary health care concept was expanded to include the use of indigenous health care as well as cosmopolitan services. The current concept has evolved into a comprehensive health care scheme that is globally accepted and serves as the foundation for many nations' health care systems, including that of India.

Primary Health Care Concept

The 1978 International Conference on Primary Health Care, sponsored by the WHO and the United Nations Childrens Fund (UNICEF) was held in Alma Ata, USSR. This meeting of international leaders occurred both as a response to problems in health care systems and as a springboard toward worldwide acceptance of the "health as development" concept (United Nations, 1983). Although the movement toward primary health care as a culturally appropriate method of meeting basic health needs of people was first initiated 40 years ago, the term "primary health care" was coined at the Alma Ata Conference. Primary health care was deemed by world health leaders as "the key to attaining health for all by the year 2000" (United Nations, 1983, p. 1). The conference affirmed that "the attainment of the highest possible level of health is a worldwide social goal" (World Health Organization & United Nations Childrens Fund, 1978, p. 2). "Health for all" continues to be the primary objective of many nations' health care plans, including India (Government of India, 1984; United Nations, 1983).

The conference was held because in both developing and industrialized countries, substantial numbers of people were sick and died from conditions that could be prevented or readily treated. Even though vast amounts of money were spent on sophisticated technology, these resources only served a small segment of the population. Preventive measures and less expensive curative measures were often pushed aside (United Nations, 1883). Although these deficiencies appeared worldwide, they were greatest in rural areas in developing countries where poverty and low levels of education persist (United Nations, 1983; WHO, 1986).

In reaction to this information, health leaders demanded that all people must have access to basic services necessary for health and well-being. Primary

health care was recognized as the infrastructure that could reach people at the "grass roots" and provide them with low-cost basic preventive and curative services (Hellberg, 1986). Primary health care, it was stated (World Health Organization & United Nations Childrens Fund, 1978),

> is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. (p. 2)

India is a signatory to the WHO Alma Alta Declaration. In the Indian Seventh Five-Year Plan (Government of India, 1984), one objective is to

> improve greatly the physical well-being of the people and the environment in which they live. This will require an improvement in nutritional support for vulnerable groups, an expansion and improvement in health care, fertility control, the provision of clean drinking water and sanitation and housing. (p. 2)

This objective underscores the importance of the intersectoral approach, and the accepted belief that improvement in health will result only if other problems in daily living are simultaneously addressed.

The Seventh Five-Year Plan also endorses the goal of social development of the people through poverty alleviation and literacy programs, community involvement in health programs, and transfer of medical and health knowledge to local people (Government of India, 1984). The plan promotes individual, family, and community self-reliance and participation in the planning and implementation of programs that will ultimately lead communities to assume more responsibility for their own health (Nichter, 1984). However, a major weakness in primary health care schemes has been that research has not been conducted at the grassroots level, and as a result, primary health care is often not accountable to the local population.

Organization of Health Services in India

The concept of primary health care and its pattern of delivery through primary health centers serves as the organizational pattern for the delivery of health services in India. Although the Ministry of Health at the national level is responsible for developing the health policies and priorities of the nation, individual states have a great deal of autonomy in health services administration (Government of India, Research and Reference Division, Ministry of Information and Broadcasting, 1987; Sutnick & Puchkov, 1980). The state Ministers of Health and Family Welfare make up the Central Health Council, chaired by the Minister of Health of the Central Government.

In addition to a Minister of Health, each state has a Secretary of Health and usually both a Director of Health Services and a Director of Medical Education. Medical colleges and their hospitals in each state are under the jurisdiction of the Director of Medical Education. The Director of Health Services supervises the Chief Medical Officers of politically defined districts which implement the primary health care scheme.

State autonomy has resulted in part from the dense population and the vastly different languages and cultures found in each of the 22 states. India has an area one-third that of the United States, but is inhabited by three times the population, about 835 million people (Population Reference Bureau, Inc., 1989). Health problems that result from overpopulation are compounded by the large percentage of rural people that are uneducated, poor, and have little or no access to medical facilities (Sutnick & Puchkov, 1980). Hence, the seven-tiered Primary Health Care Model (Table 2.1) is an ambitious plan aimed at improving the general health of all citizens, but especially those in rural, underserved areas.

Table 2.1 Structure of the Health Care System in India.

Level	Staff/services	Villages served	Approximate population served
Medical college hospital	All services of district hospital plus specialists.		5,000,000
District hospital	District medial and health officer; chief medical officer for medicine, health, and family planning.	1,200-1,800	1,500,000
Upgraded PHC (*taluk*) hospital	Oversees four primary health care centers; medical, surgical, OB/GYN, pediatric, dental services.		300,000 to 400,000
PHC	Medical officers, nurses, midwives, pharmacist, lab technician, health visitors, multipurpose workers. Inpatient and outpatient care.	80-100	30,000 to 100,000
Subcenter	Outpatient clinic; physician, auxiliary nurse midwife (female), multipurpose worker (male).	8-10	10,000
Mini-center	Part-time physician, local health workers.	2-3	2,000
Village	Village health guides; indigenous midwives (*Dais*).	1	500-1,500

Adapted from Faruquee & Johnson, 1982; Sutnick & Puchkov, 1980.

At the village level a health guide selected by the village council, the *Panchayat*, is trained to act as a health educator about disease prevention, nutrition, and family planning (Kulkarni & Jadar, 1986). The health guide also diagnoses and treats certain tropical diseases, and advises fellow villagers whether or not to seek further care. The health guide receives training from doctors and health workers at the Primary Health Center (PHC) and acts as a liaison between the community and the PHC (Kulkarni & Jadar, 1986; Sutnick & Puchkov, 1980). The village health guide scheme, originally known as community health workers' scheme, was introduced in India in 1977 to supplement the existing primary health care system and has been both praised and criticized (Jeffery, 1982; Sutnick & Puchkov, 1980).

Also, at the village level are trained midwives (*Dais*) who assist the auxiliary nurse midwife working out of the subcenter.

Some states have added mini-health centers to the primary health care plan. In Tamil Nadu, mini-centers were introduced in the Seventh Five-Year Plan to encourage voluntary agencies (such as private academic institutions) to help in the delivery of health services to people in remote villages (Tamil Nadu, n.d.). Mini-centers are staffed part-time by a government physician and/or local health workers who diagnose and treat minor illnesses.

One step above the mini-center is the subcenter which serves as an outpatient clinic and as a classroom for health and nutrition instruction. A physician supervises full-time multipurpose workers and auxiliary nurse midwives who have more advanced training than health guides. These health personnel circulate among five or six villages to carry out immunization programs and provide surveillance of the health conditions of the community (Sutnick & Puchkov, 1980). In keeping with its policy of involving the community, the government asks the village council to provide a building which is then equipped with electricity and safe drinking water. If a building is not available, the village is asked to provide land for the government to construct a subcenter.

The fourth tier includes primary health centers which cater to populations of 30,000 to 100,000 people. Each primary health center serves four subcenters, and houses facilities for surgery, a laboratory, inpatient care, and outpatient care. The staff at the primary health center includes doctors (both cosmopolitan and indigenous at some centers), public health nurses, auxiliary nurse midwives, health visitors (who act as supervisors of the subcenter staff), multipurpose workers, and *Dais* (Sutnick & Puchkov, 1980). In addition to medical services, the center functions in such areas as maternal and child health, school health, family planning, vital statis-

tics, immunization, and health inspections (D. Rajalakshmi, personal communication, March 21, 1989).

The fifth tier includes upgraded PHCs or subdistrict (*taluk*) hospitals. The primary health care scheme designates that one *taluk* hospital oversee four primary health centers. Most districts have three to four *taluk* hospitals. Each facility serves 300,000 to 400,000 people, is staffed by physicians and nurses, and provides medical, surgical, obstetrics-gynecology, pediatric, and dental services (Faruquee & Johnson, 1982).

Functioning at the sixth tier are district hospitals where specialists, general physicians, and nurses provide care to over a million people. The district hospital staff includes the district medical and health officers, and chief medical officers for the hospital's medical, surgical, and obstetrics-gynecology units. These hospitals have between 200 to 500 beds and are better equipped than the subdistrict hospitals.

At the top of the pyramidal system are the state-run medical college hospitals. There are well over 100 medical colleges in India, each with its own general hospital serving a population of about 5 million (Sutnick & Puchkov, 1980). In addition to the services provided by the district hospitals, they provide a broader range of services, including specialties. Recently, medical colleges have been "assigned" to advise primary health centers on medical matters and to assist in the training of the personnel working out of the centers. This increases the staff available to serve the population and helps to upgrade the PHC resources and medical education.

Additionally, there are specialized government and private hospitals for tuberculosis, leprosy, eye diseases, cancer and other diseases. Autonomous private hospitals, charitable hospitals, and missionary hospitals representing Hindu, Mus-

lim, Jain, and Christian religions also exist. Finally, some industries own hospitals: Steel manufacturers, coal miners, and railway, defense, and postal workers patronize their own clinics and facilities (Sutnick & Puchkov, 1980).

In the years following Independence, the primary health care scheme has brought about much growth and change in the organization of health services and development of human resources. However, despite such advances, the PHC plan alone cannot solve the deficiencies in health care. Studies show that outreach of PHC centers is limited to a radius of a few miles and, even then, patients are not satisfied with the quality and quantity of services provided (Cassen, 1976; Rao, 1985). Health care delivery in rural areas is further impeded by the under-utilization of these existing government facilities (Rao, 1985).

A significant portion of health care sought outside the home is provided by persons who practice medicine privately on a fee-for-service basis. Many doctors have been trained in biomedical principles. Others practice various types of indigenous medicine. Still others practice medicine that combines biomedicine and indigenous practices. In much of India, including the Coimbatore District in Tamil Nadu, some doctors who work in government facilities also practice privately on a fee-for-service basis.

The state of Tamil Nadu recognizes that indigenous medicine still has enormous appeal and use, especially in rural areas. The Tamil Nadu Seventh Five-Year Plan advocates strengthening research and practitioner training programs in Indian medicine (*siddha*, *ayurveda*, and *unani*) and homeopathy to increase the number of professionally trained personnel (Tamil Nadu, n.d.).

The coexistence of a wide range of doctors and other health care specialists contributes to the medical pluralism that is characteristic of the health care system in the state of Tamil Nadu. The type of treatment sought by ill family members falls

roughly in the categories Kleinman (1980) describes as the popular (or lay), professional, and folk sectors.

Lay Treatment

Lay treatment, also called home treatment, is practiced upon the individual by her/himself, family members, friends and neighbors. This type of care may include the application of home remedies, adjustments of diet, purchasing and use of allopathic or indigenous medicines, as well as magico-religious elements such as *puja*, wearing of amulets, or rituals to propitiate deities (Gelb, 1984; Parker et al., 1979). Although most lay treatment is practiced in the home or village setting, it is also extended to the hospital setting. Because of the severe shortage of nursing and other hospital staff, patients' relatives contribute significantly to patient care by providing food, personal items, and companionship for the hospitalized patient (Minocha, 1980).

Professional Treatment

A dual system of professionalized cosmopolitan and indigenous health care exists in the state of Tamil Nadu, with parallel institutions for research, education, and practice (Leslie, 1977). However, even though some indigenous practitioners are professionalized and are widely patronized, cosmopolitan health care continues to enjoy a dominant status over indigenous treatment (Baer, Singer, & Johnson, 1986; Leslie, 1976).

Cosmopolitan (or allopathic) medical doctors who have completed formal biomedical training are licensed as doctors with an M.B.B.S. degree. Nurses may also receive formal nursing training at the same institutions. These health professionals may elect to practice either in a government hospital, a primary health care

facility, or in a private medical facility. They also train local health workers in the use of allopathy.

Although the state of Tamil Nadu's health care system reflects the Central Government's orientation toward cosmopolitan medical theory and practices, the system also accommodates professionalized Indian medicine (*ayurveda*, *unani*, *siddha*), and homeopathy. *Ayurveda* means "the science of life," and is one of the oldest formulated systems of medicine still practiced in India (Kurup, 1983). It is derived from the body of knowledge believed to be of divine origin and codified in the *Ayurveda*, which is one of the major sources of all sacred and worldly knowledge in Hinduism. The original texts are dated from the first millennium of the modern era (Das, 1987; Egnor, 1983).

Das (1987) explains that the *ayurvedic* system is based on the unity of body and mind, rather than the mind-body dichotomy expressed by the biomedical model. This philosophy of unity is exemplified in beliefs about causes of illness and in holistic treatment offered by *ayurvedic* practitioners. Any illness, whether physical or psychological, is viewed in the context of familial, social, cultural, and cosmic influences. The general theory of disease is based on the concept of imbalance among the three bodily humors--wind, bile, and phlegm. Imbalance, and therefore disharmony, may be brought about with changes of season, improper diet, immoral life, or mental states (Das, 1987; Gelb, 1984).

Ayurvedic treatment requires the combined efforts of the practitioner or *Vaidya*, patient, and medicine to treat the disorder and restore equilibrium in the body. Treatment includes diet, emphasizing foods in the hot/cold dichotomy, codes of conduct, regimens such as purging to restore balance, medicinal preparations, and sometimes surgery (Gelb, 1984; Kurup, 1983).

Even though the principles of *ayurveda* are widely accepted by patients and practitioners in rural and urban areas, the practice of scholarly *ayurvedic* medicine is largely confined to urban areas in conservative upper classes, whose "cultural pride leads to great reliance on indigenous practitioners" (Taylor, 1976, p. 289). Nichter (1980) further explains that in rural areas, *ayurveda* is not practiced as a systematic theory as presented in the classical texts, nor is it less expensive than cosmopolitan therapies. Most *ayurvedic* practitioners in rural areas are label themselves *Vaidyas* because they administer common *ayurvedic* regimens, not because they have attended formal ayurvedic training (Nichter, 1980).

The *Unani* system of medicine developed after the invasion of India by the Muslims. *Unani Tibbia* medicine (which means "Greek medicine" in Arabic) represents the synthesis of Arabian and Persian practices of Greek origin with *ayurvedic* principles. It is practiced by the Muslim *hakim* (Gelb, 1984). Although this system is present in Tamil Nadu, it caters to a minority Muslim population and is not widely sought after.

Unani and *ayurvedic* medicine have become highly syncretized and jointly offer a well developed pharmacopeia. Traditionally, practitioners gathered herbs and prepared their own medications. Now, however, the manufacture and sale of *ayurvedic/unani* medications is a large industry in India, and these drugs are available in prescription and non-prescription form.

Siddha represents a third form of professionalized indigenous medicine in Tamil Nadu and other South Indian states, and is viewed by some as a Tamil-language variant of the *ayurvedic* system (Leslie, 1976b). The *siddha* system of medicine dates back to the 8th century A.D., when Dravidian culture flourished (Egnor, 1983). *Siddha* can be distinguished from *ayurveda* in two ways. First, *siddha* principles are primarily curative rather than preventive. Second, as Egnor

(1983) explains, the *siddha* tradition contains various symbolic forms of concealment: the *siddhar* yogis are believed to have the ability to become invisible; the language of *siddha* poetry is "notoriously esoteric"; and, medicinal recipes are secretly kept (p. 939).

The fourth type of professionalized indigenous medicine, homeopathy, originated in Germany in the 19th century, and is based on the concept of creating resistance to an illness by giving small doses of it (Leslie, 1976b). In India its practice has assimilated elements from *ayurvedic* and *unani* traditions to form a distinctive form of medicine. Most registered homeopathic practitioners are registered jointly with practitioners of *ayurvedic* and *unani* medicine, although separate state boards of homeopathic medicine are being formed (Leslie, 1977). Although homeopathy is practiced in towns and urban areas in Tamil Nadu, it is not popular among rural people.

Although it appears that a dual system of professionalized indigenous and cosmopolitan medicine exists, Leslie (1977) argues that in theory and practice, the two are not isolated from each other. For example, in outpatient clinics and wards for research and teaching both systems may be located in the same university hospital. A large private hospital may have outpatient clinics for homeopathy, *ayurveda*, and cosmopolitan medicine. Nichter (1980) explains that these joint clinics may be "managed by two generational medical families adapting to a competitive medical market" (p. 226). Likewise, the PHC center in Karamadai Block, which was visited by the researcher, had outpatient clinics for *siddha* and cosmopolitan medicine; the cosmopolitan clinic offered care to families with acute medical needs, whereas the siddha clinic was patronized by older patients suffering from chronic diseases (D. Rajalakshmi, personal communication, March 21, 1989).

Professionalized indigenous practitioners have also incorporated medical equipment and drugs associated with cosmopolitan medicine into their practices. Gelb (1984) provides three examples: (1) the stethoscope lends an air of modernity which may enhance the *vaidya's* reputation, and may or may not be properly used; (2) the use of antibiotics provides rapid results in cases of infection and/or fever, and patients will often request antibiotics over slower-acting ayurvedic preparations; and (3) because drugs provide even faster results when injected, injections have wide appeal in rural as well as urban populations, and are administered by indigenous and cosmopolitan professionals.

Folk treatment

Folk treatment is practiced by midwives, bone-setters, supernatural curers of various types, herbalists, priests, and other specialists, mostly on a part-time basis (Gelb, 1984; Leslie, 1977). Included in this group are also other health personnel, including nurses, technicians, dispensers, community health workers, and others who aid doctors and assume curative tasks (Minocha, 1980). Because "all classes of people in India resort . . . to magical and religious therapy" (Leslie, 1977, p. 360), these folk healers practice medicine on illiterate village people as well as highly educated urbanites. Except for Brahmin priests and midwives, they may come from all castes above the Scheduled Caste (formerly called untouchables). Midwives (or *dais*) generally belong to the Scheduled Caste because of the belief that assisting in childbirth is "polluting" work (Gelb, 1984).

In spite of their popularity, folk practitioners lack any formal training, although they may have served an apprenticeship with another healer. They are neither registered by the government, nor officially a part of the Indian medical system, even though in South India as many as three unregistered practitioners exist for every registered full-time practitioner or doctor (Gelb, 1984; Leslie, 1977).

In rural areas, folk practitioners may appeal to their patients because they are recognized for their religious status, or because they are similar in terms of status, education, and lifestyle. With either qualification, villagers frequently establish comfortable personal relationships with them (Gelb, 1984). For example, a study conducted in Tamil Nadu found that *Saiva* gurus are often approached for solutions to life problems, including illness. The sacred ash they distribute, their blessings, their touch, and their words are believed to have healing powers (Egnor, 1983).

Nichter (1980) reported that villagers are more concerned with the types of medicines that a healer uses rather than her/his qualifications. For example, "Registered Medical Practitioners" are without formal (institutionalized) training in either allopathic or indigenous medicine, but nevertheless rely on both systems. They routinely use the stethoscope, prescribe antibiotics, and administer injections as often or more often as they prescribe *ayurvedic* or homeopathic therapies (Banerji, 19790; Minocha, 1980; Nichter, 1980).

Thus, the pluralistic character of the health care system may be expressed in a number of ways. Medical pluralism may refer to the coexistence of multiple forms of treatment, including that provided by laypersons, professionals, and folk practitioner, and it may also mean pluralism within a particular sector. For example, a villager may have the choice between consulting a professionalized *ayurvedic* practitioner or allopathic doctor; and, after choosing an allopathic doctor, may either go to a government hospital, private clinic, or PHC subcenter. At the private clinic, the doctor may practice a combination of *ayurvedic* and allopathic medicine, such as dietary restrictions and injections, depending upon the illness. Finally, in the course of treatment, the patient may be also be attended to by other personnel, such as a midwife or untrained drug dispenser who function as folk healers.

Leslie (1977) has reminded us that "the Indian medical system simply does not exist as a table of organization of professionalized medicine, beginning with the Ministry of Health and working down to the primary health centres" (p. 516). Moreover, he has cautioned that this approach hampers our understanding of the complexity of the pluralism that exists, and distorts our thinking about the manner in which it functions.

There remain many unanswered questions as to why Indian villagers utilize particular types of health care in comparison to others. The following section addresses factors that are important in describing and analyzing health care choice in this South Indian study.

Utilization Studies in India and Developing Areas

A considerable amount of literature seeks to explain why people do or do not use health services. Research on health-seeking behavior in developing countries is of both theoretical and practical relevance, as it analyzes concepts of origin and management of illness and provides information about needs for different kinds of health services (Kroeger, 1983a). Research about health care utilization is particularly complex in less developed areas, where indigenous health care coexists and/or competes with cosmopolitan practices, and health beliefs and practices are modified by cultural change (Kleinman, 1980). Unfortunately, modernization schemes do not always bring about the desired changes in the health care system. In India, for example, despite the rigorous launching of the PHC plan to provide care to its rural population, many villagers are still without adequate health services. For these people, health care is often not available, or if available, varies widely in quality and acceptability (Government of India, 1984; Minocha, 1980).

Given this situation, it is important to study preferences and utilization patterns as reported by the people themselves. In a particular cultural setting, what choices do people make about health services when they are ill? What personal and social factors explain the choice of therapy? (Bhardwaj, 1975; Dutta, 1986; Kroeger, 1983a). Studies about how villagers use health care resources when they are ill provides important information to planners and educators to help identify their community health needs and appropriate resources, and also targets barriers contributing to underuse of present services (Minocha, 1980; Nichter, 1984).

Conceptual Approaches to Utilization Studies in the U.S. and Europe

Conceptual frameworks have been developed for medical/health care utilization studies. Although this section focuses on utilization studies that have been significant in India and other less developed countries, current conceptual models draw from past studies conducted in Europe and the United States. McKinlay (1972) provided a systematic review of this literature, outlining six analytically different approaches that have appeared in past reports. These approaches are briefly described as follows:

1. The economic approach contends that a major determinant of use of medical services is found in the financial cost or "financial barriers" to the use of medical care (McKinlay, 1972, p. 119). It has been suggested that the "transformation of need into demand" by consumers is directed by economic factors such as income, health insurance cover, the cost of health services, and the availability of free medical care. McKinlay pointed out that while the presence of financial resources may directly or indirectly affect the use of services, this factor alone cannot adequately account for patterns of utilization with regard to illness.

2. The socio-demographic approach relates utilization to demographic and social variables such as age, education, religion, ethnicity, and socioeconomic status. This approach, commonly used by medical sociologists and epidemiologists, has established the "inverse relationship between socioeconomic status and indicators of illness" which has been extended to utilization behavior (McKinlay, 1972, p. 121). McKinlay suggested that future studies should go beyond epidemiological investigations of this nature, to examine intensively some of the characteristics of utilizers and underutilizers that are not available with routine socio-demographic data.

3. The geographic approach focuses on the geographical proximity (including travel time and availability of services) of services as an important determinant of utilization behavior. Research in this area contributed to the concept of the neighborhood health center in the United States and Great Britain, and the worldwide primary health care plan, as a means of meeting health needs of certain populations (McKinlay, 1972; WHO & UNICEF, 1978). However, the geographic approach fails to explain why certain groups will still underutilize even when the problem of proximity is eliminated.

4. McKinlay (1972) summarized three main areas social psychologists have explored in their approaches to utilization behavior--motivation, perception, and learning. Principles of motivation analyze human needs in an effort to provide a basis for understanding behavior. One major contribution in this area was Rosenstock's (1966) research in the 1960s regarding conflicts between motives and behavior; health-related motives may not always give rise to health-related behavior (McKinlay, 1972).

Other researchers have examined the importance of perception in terms of negative beliefs and attitudes (such as fear and pessimism) as determinants of the use of medical services. Hochbaum's (1958) research highlighted the importance of

positive beliefs underlying decisions to utilize preventive health services. The Health Belief Model (Rosenstock, 1966) and the Behavioral Science Model are outgrowths of this research, and attempts to view behavior holistically in relation to utilization (Kohn & White, 1976; McKinlay, 1972).

The third area of socio-psychological research has been in the area of learning. Past studies demonstrate that a person's knowledge of illness and health, and also the professional's perception of the patient's knowledge, are factors in seeking preventive and therapeutic medical care (McKinlay, 1972; Mechanic & Volkart, 1960).

Another application of socio-psychological research to utilization behavior appears in the work of Suchman (1965), whose studies describe stages of decision-making and cues to action. Each stage presents new problems and requires different kinds of decisions and actions.

5. The socio-cultural approach proposes that values, norms, beliefs, and lifestyles of members of different social strata may help explain differential utilization rates. Suchman (1965) showed that social organization (identified as membership in an ethnic or cultural groups) is related to health orientation, and that the broad framework of a socio-cultural setting rather than single, specific factors are associated with health or illness behavior. Ten years later, Geertsen, Klauber, Rindflesh, Kane, and Gray (1975) reexamined Suchman's model and concluded that in addition to social norms and ethnic ties, past medical experiences and kin relationships also affect the decision-making process.

6. The focus on organizational or delivery system constitutes a final approach which is distinguishable from the others by its identification with impediments in the health care system rather than personal pathologies of people and/or groups (McKinlay, 1972). This approach seeks to discover how bureaucratic factors

(as vastly different as community structure or content of verbal communication) influence the professional-client relationship, and thereby contribute to utilization patterns.

Conceptual Approaches to Utilization Studies in Developing Areas

Historically, health care studies in less developed countries can be typified by whether the approach is correlational or cognitive (Huss-Ashmore, 1984; Kroeger, 1983a). Correlational (also termed socio-medical) approaches have determined treatment choice for illness as a result of either some cultural aspect of the disease, some social or economic aspect of the person seeking treatment, or some material aspect of the treatment facilities available. The correlational approach uses quantitative analysis. In contrast, cognitive approaches have emphasized the features of local health belief and the decision-making process. This information is generally subjected to qualitative rather than quantitative interpretation.

Different research interests have resulted in a division of scholars into two camps. Some authors have stressed the importance of predisposing factors and levels of disease concepts. Others have pointed to the particular importance of enabling factors (Kroeger, 1983a). Kroeger warns that the antagonism created between "soft observational and hard epidemiological research" (p. 157) has diminished opportunities for a common approach and greater understanding of health behavior. Researchers have not yet found a comprehensive model capable of examining the wide variety of significant variables using both quantitative and qualitative measures. Ideally, the approaches complement each other: quantitative correlations describe group patterns of health care use and isolate important variables;

qualitative research helps to discover why these factors are meaningful (Stoner, 1985).

The desire to use complementary models relates to recent changes in the focus of research in health utilization studies. Foster (1982) explained that earlier research in international health programs sought to define ways in which the indigenous culture, and particularly native medical beliefs and practices, inhibited the population's acceptance of (and therefore underutilization of) cosmopolitan health care. In contrast, more recent research analyzing low utilization rates of cosmopolitan facilities has emphasized health services factors--e.g., bureaucratic complexities, costs and physical accessibility of health facilities, and interaction styles of practitioners--as significant in health care choice.

The implementation of the WHO Primary Health Care plan has also affected current research strategies. Because the primary health care system makes use of cosmopolitan as well as indigenous resources, and stresses community participation in defining health priorities, the narrow focus of earlier utilization research is no longer meaningful (Foster, 1982; Hunter, 1985). Increasingly, researchers must be concerned with the role of "extracommunity" factors as determinants of local health care decisions. Foster (1982) explained that the underuse of health care services is not simply explained by cultural barriers. Rather, "basic structural and historical factors having to do with economics, caste and class, religion, politics, land tenure . . . frequently militate against genuine community efforts in solving health problems" (p. 193).

Although the current models used in studies done in developing areas identify both cultural and socio-medical factors that influence health care decisions, they employ very different research strategies. Kroeger (1983a) has identified the two strategies as discussed in the following two sections.

Pathway Model

The pathway (or decision-making) model is a primarily qualitative approach describing steps in decision-making that lead to choice of certain health services. Information gathered from the participants through observation and interviews are useful in explaining what information the person considers when faced with an illness treatment decision, how the available treatment alternatives are evaluated, and what relevant constraints are operative (Young, 1981).

Informal decision-making models have been used in classic anthropological studies in India and other areas to analyze health care strategies. In his study of Indian villages, Beals (1976) found that the decision-making strategy depended mainly upon the identity of the illness in question, but was also related to the cost of treatment, likelihood of successful treatment, and presence of social network. Janzen's (1978) concept of the therapy managing group proposed that close kinsfolk or friends who surround the ill person are the key to understanding why and how alternative therapies are chosen. Romanucci-Ross's (1977) hierarchy of resort referred to the informal pattern of behavior shown by groups of people in the Admiralty Islands as they chose between alternative therapies in search of a cure.

More recent decision-making studies have been conducted by Nichter (1980) and Staiano (1986). Nichter's (1980) study in South Kanara, India found that villagers search for medical help based on the type of medicine (either allopathic or indigenous) they desire in treatment. Staiano (1986) pointed out that healers in a medically pluralistic society modify indigenous treatments in the process of cultural change, so that treatments are not purely indigenous or modern. The choice of alternative therapies depended on the degree of physical, financial, and social accessibility of the medical resource desired rather than whether or not the treatment reflects biomedical principles.

In recent years other researchers have developed formal quantitative models of decision-making that can be used to predict health care choice (Stoner, 1985). Young (1981) reported on Fabrega's recent work in non-Western cultures. Using a formalized model, Fabrega proposed that health care decisions are patterned and predictable, and that people will reach a decision based on the "utility value" associated with a certain treatment option (p. 501).

Young (1981) developed a decision-making model to determine how Tarascan (Mexican) Indians chose between indigenous and cosmopolitan medical treatment. On the basis of information gained through formal interviews, he was able to systematically discover and quantify factors which were involved in the choice of treatment. These principle decision criteria could then be used to predict future health care use by other members of the community (Stoner, 1985).

Determinants Model

The determinants model explains the choice of different health services based on a set of "explanatory variables" or "determinants" (Kroeger, 1983a, p. 148). Explanatory variables explain or influence the observed variance of the dependent variable, the choice of health care. Explanatory variables may be any combination of economic, socio-demographic, geographic, social-psychological, socio-cultural and organizational factors. Much of the information gathered through this approach is quantitative in nature.

Although this model was sporadically used by researchers outside the U.S. and Europe in the 1960s, the wide appeal of the determinants approach in developing countries is attributed to a specific framework developed by the World Health Organization International Collaborative Study on Health Care in the 1970s (Kroeger, 1983a). The model organizes explanatory variables, or determinants of health care, into three categories: (1) Predisposing factors are demographic char-

acteristics, household and family composition, attitudes, and responsibility for health decisions; (2) Enabling factors are accessibility of health care, acceptability, and costs of health care; and (3) Health services system factors refer to the structure of the health care system and factors which link the social and political systems (Kohn & White, 1976; Kroeger, 1983a).

A more comprehensive explanation of this model is provided in the following section, as it provides the underlying framework for this study.

Explanation of the Determinants Model

This study is concerned with the extent to which personal determinants of health behavior affect the choice of treatments during illness, and how these relationships are influenced by selected characteristics in the prevailing health care system. The objective is limited to explaining patterns of therapeutic behavior rather than evaluating the appropriateness of care sought and received or to determining the prevalence of diseases.

The behavioral model shown in Figure 2.2 identifies the types of factors which influence individuals to seek health care once they have defined themselves as ill. The model indicates that the use of health services depends upon three types of variables at the individual level: perceived morbidity, predisposing factors, and enabling factors. Further, the effects of these factors may be modified by characteristics of the health services system within which use occurs. Thus, the model illustrates the relationships between systems and individual level independent variables and use of health services (the dependent variable).

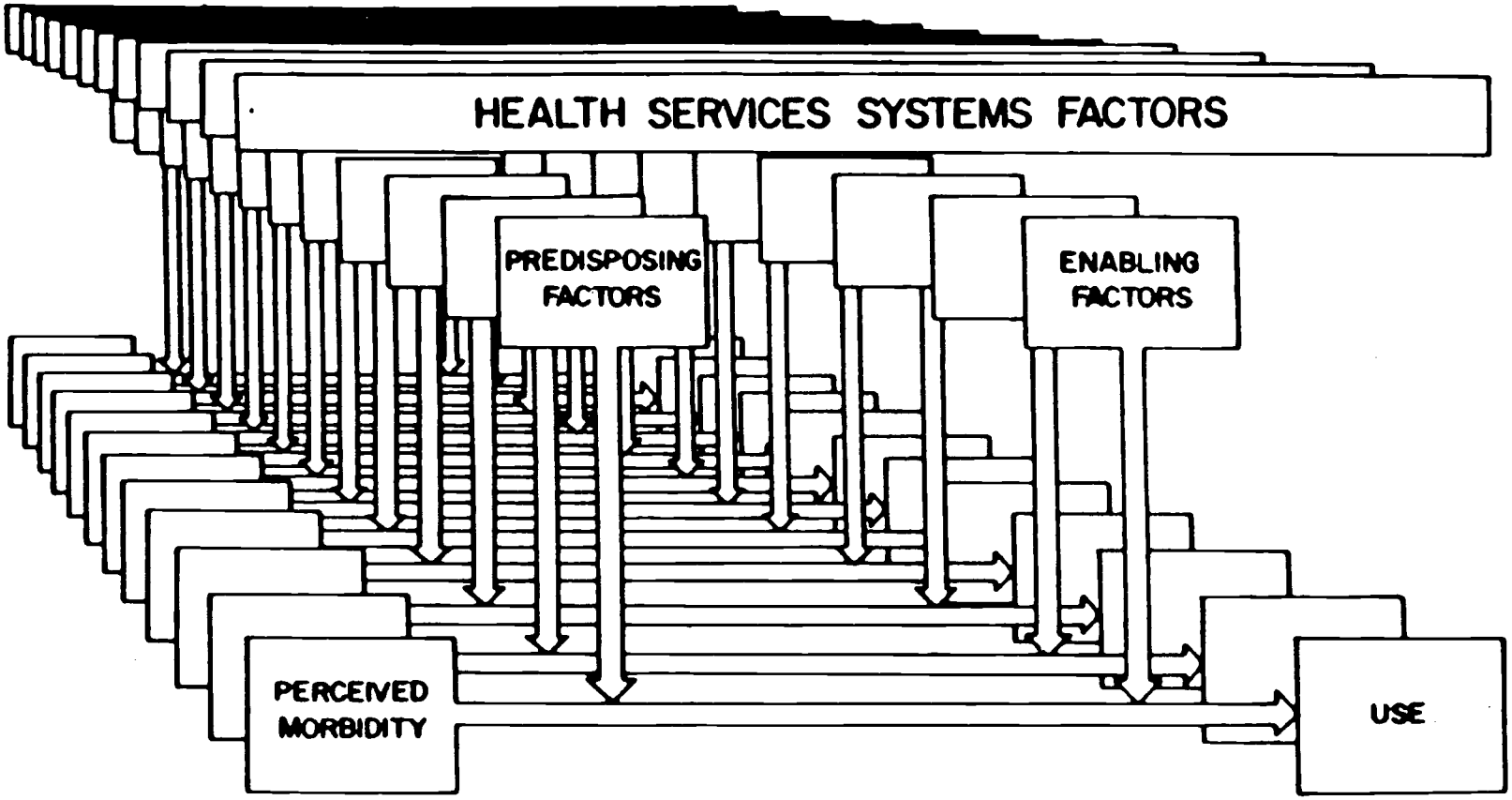

Figure 2.2 Model of Relationships Between Systems and Individual Level Independent Variables and Use of Health Services as the Dependent Variable (Kohn & White, 1976).

Components of the Model

1. Perceived morbidity: Viewed in this model as the force which initiates decision-making about whether or not care should be sought. It may or may not be a true indicator of the individual's clinical medical state. However, as it is people's beliefs about their health, rather than clinically objective states that causes them to seek care, perceived morbidity is a factor which helps to explain what actions individuals take once they view themselves as ill (Foets et al., 1985; Kohn & White, 1976).

2. Predisposing factors: The situational, sociocultural, cognitive, and attitudinal variables that act as deterrents from or catalysts for the use of health services. They are personal characteristics which exist prior to the perception of illness, and either directly or indirectly affect the behavioral response to illness. They reflect the socio-cultural background of the respondent and the household to which she/he belongs (Kohn & White, 1976).

Kohn & White (1976) divided the predisposing factors into two major categories. The first consists of variables describing the respondent's demographic nature (age and gender), and social nature (educational level, marital status, household size, and family composition). The second category of variables includes health related attitudes and expectations (e.g., perceived availability of care, skepticism of medicine) and responsibility for decisions related to family health. The first group describes factual information about the individual and family; the second set represents attitudinal factors which are more difficult to measure and validate.

3. Enabling factors: Those which "change needs into demands" (Kohn & White, 1976, p. 19). They are the variables associated with the cost of pursuing health care. In this context, "cost" is used broadly to include convenience and opportunity costs as well as financial costs. The distinction between predisposing and

enabling factors is not always clear, but Kohn and White identified family financial resources (including income and dwelling characteristics), availability and accessibility of health care, and health insurance as enabling factors in this model. Because most people use health services at the expense of giving up something else, enabling factors influence a person's flexibility of action. They also represent parameters which cannot be changed by the individual at all or can be changed to only a limited degree depending upon government involvement in the provision of health facilities.

4. Systems factors: Unlike perceived morbidity and predisposing and enabling factors, which are variables that are attributes of individuals, systems factors are institutional constants for all people within particular populations (Foets et. al, 1985). Systems factors define the contexts within which health decision-making takes place, and may influence the magnitude of association between predisposing and enabling factors and use of health care (Kohn & White, 1976). Systems factors are employed to analyze variations in the aggregate health care use of different populations. Examples of systems factors are the supply and distribution of manpower and facilities, modes of paying for care, degree of urbanization, and the structure of health care practice.

Kohn and White's (1976) model has several drawbacks. First, it lacks realism in a pluralistic setting, as the assumption is that there is only one appropriate source of care for any given problem and that all members of the society share this basic belief. Second, the model is atemporal, and therefore static; it does not describe the process used in selecting health care services. Although Kroeger (1983a) modified this model so that it is applicable in pluralistic settings, the second drawback is recognized as a limitation in this study.

Conceptual Modifications in this Study

Kohn & White's (1976) explanatory model has recently been adapted by Kroeger (1983a) to explain health care treatment options in medically pluralistic developing areas. The framework provided by Kroeger integrated material contributed by the disciplines of epidemiology, sociology, economics, and anthropology. His model is particularly suited to the researcher's needs because it organized the variables into a simplified framework, recognized the concept of "healer shopping," the use of several healers for a single episode of illness, and also included the possibilities of self-care (including no treatment) as aspects of health utilization behavior.

Kroeger (1983a) grouped independent or explanatory variables according to: (1) Characteristics of the subject, or predisposing factors, (2) characteristics of the disorder and their perception, (3) characteristics of the service, or a combination of health service system factors and enabling factors. The dependent variable represents a choice of one or more treatment options which vary from professionalized services to self-care. Although Kroeger (1983a) presented a wide range of explanatory variables, those selected for investigation in this study are listed and grouped in Figure 2.3. The following section is a discussion of these variables as they have appeared in studies in developing countries.

Factors Associated with the Use of Health Services in Developing Areas

Characteristics of the Subject (Predisposing Factors)

1. Age. It has been suggested that age is a discriminatory factor in the choice of health care. For example, in rural Cameroon, Nchinda (1977) found that children under five years of age were the highest users of cosmopolitan medical care and the lowest users of indigenous care. Self-care was infrequently reported.

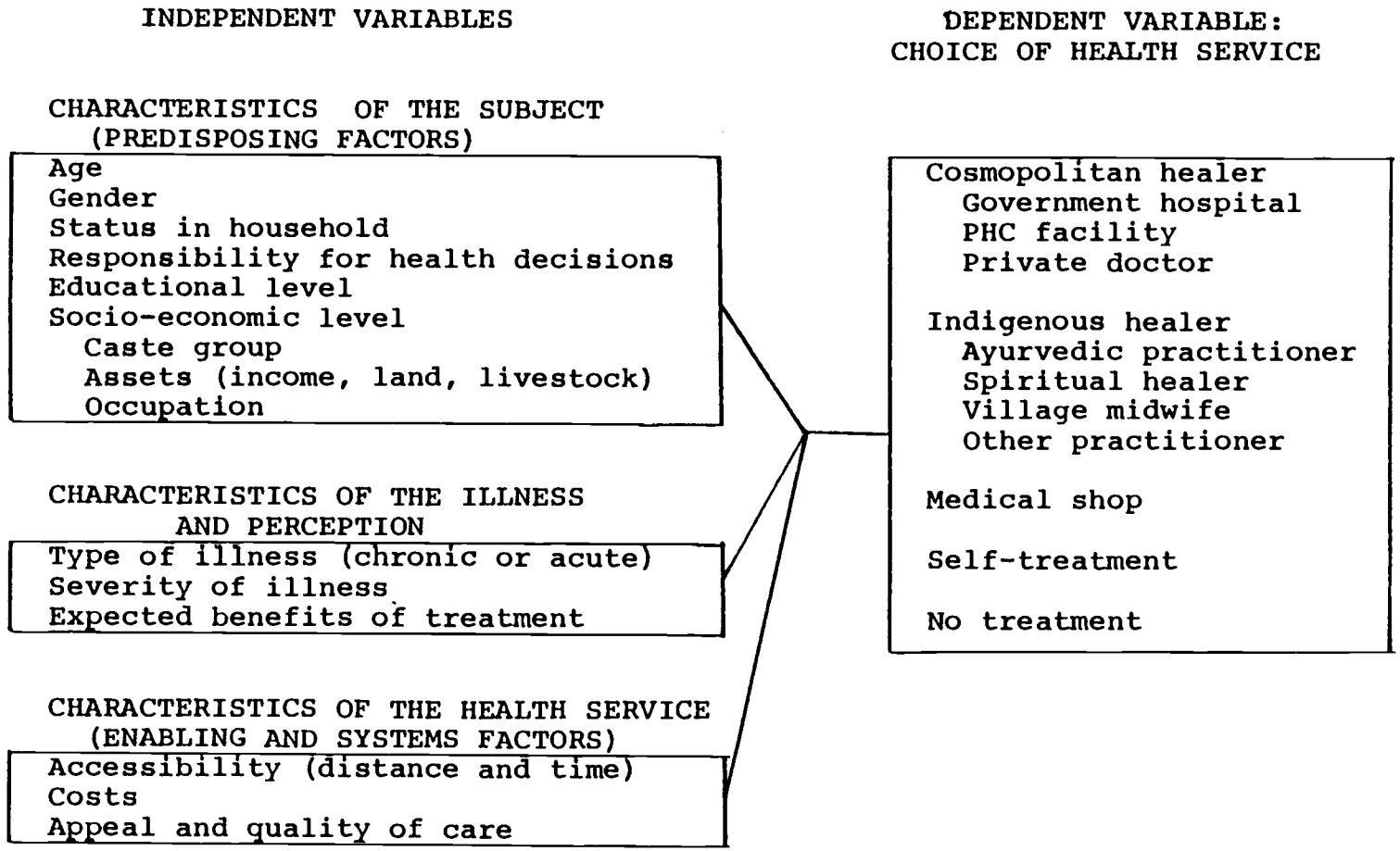

Figure 2.3 Choice of Health Services in Relation to Independent Variables (adapted from Kroeger, 1983a).

In a South Indian study of child survival patterns, Shariff (1987) discussed age differentials as related to types of illness; children were given immediate treatment for diarrhea, while adults delayed in their treatment.

Nichter (1980) found age-specific patterns of resort in South Kanara, India to be associated with cultural beliefs about cause and types of medicines desired. Indigenous therapy was preferred for young children's illnesses, because "cosmopolitan medicines are too powerful for a child's body" (p. 228). Srivastava (1983) discovered that age was a factor in disease attributions, and that this affected the type of treatment sought. Younger respondents attributed disease most often to "own carelessness" and sought scientific therapy; middle aged and older respondents believed disease was caused by "bad deeds and the wrath of God," and sought indigenous treatment (p. 87).

In contrast, Madan (1969) surveyed urban and rural Indians, and found the age of the ill person to be inconsequential, but the age of the decision-maker was important. (The age of the decision-maker is discussed below in this section.) Extensive research by Parker et al. (1979) in India and Nepal related no significant differences in the use of self-care due to age or gender unless related to caste.

2. Gender. There are numerous studies documenting gender discrimination in health care utilization. Chen et al. (1981) and Das Gupta (1987) revealed pronounced sex differentials in the allocation of medical care against girls in Bangladesh and India due to son preference. Dyson & Moore (1983) qualified this by stating that even though son preference exists throughout India, this cultural pattern is stronger in the northern states of Punjab, Bihar, and Uttar Pradesh, and differential care is more pronounced in these areas.

Sen (1987) reported from the Indian Council on Medical Research that even though the number of girls suffering malnutrition outnumbers that of boys, there

were greater numbers of boys hospitalized for that condition. Charlton (1982) agreed that families provide better health care to boys.

Even earlier anthropological studies found this disparity to be true. Beals (1976) researched Indian villagers, and noted that girls received less medical attention than boys. Even more serious was "the virtual absence of medical treatment for late-born female children" (p. 192) because they were considered to be superfluous children.

Other studies have found that there are gender differences in the type of care received. Bhardwaj and Paul (1986), in their study of higher female infant mortality rates in India, reported that qualified doctors were used more extensively for boys, while non-qualified and indigenous practitioners were more frequently sought for girls. In a study of primary health centers in Bihar, Rao (1985) stated that specialist care was sought mainly for male adult members of the community while medical care for women and children was limited to that offered by the PHC.

Jha (1983) and others (Khan, Dastidar, & Singh, 1986; Sen, 1987) have conducted studies in rural districts of India to explain the higher infant mortality rate (IMR) of girls and lower life expectancy of women as it related to discriminatory health care. They found the following: (1) Underreporting of women's illnesses, especially in rural areas, (2) women did not go to male doctors for gynecologic problems, (3) fewer hospital beds were reserved for women (4) despite greater levels of illness, women used medical facilities less often than men, and (5) women only sought medical help if severely ill, and then only used free government services rather than expensive private doctors.

Isely (1988) believed women have not benefitted equally with males from modernization efforts in India. Despite increased availability of allopathic services, she reported that fewer women than men used this type of care. Sen's (1987) find-

ings are in partial agreement with those established by Isely. In his work near Delhi, India, Sen said that if facilities were handy and not expensive, women and men visited on an equal basis. However, if time and travel costs were extensive, the men were favored.

Dunn (1976) related that due to cultural prohibitions, women would always underuse facilities staffed by male doctors and practitioners when seeking help for gynecologic disorders. Most *ayurvedic*, *unani*, and rural cosmopolitan doctors are males, but most women would not go to male doctors if the illness was gynecologically related (Dunn, 1976; Rao, 1985).

3. Status in household. In most societies persons with elevated household statuses are crucial in the therapy management of the whole family. The household head may receive special attention (Kroeger, 1983a). Sivamurthy (1988) explained that the gender of the household head was important in patrilineal Indian families. Females become the head only in certain circumstances, such as widowhood, divorce, or in the absence of the male head. Additionally, because household status is associated with the woman's husband or her father (whoever is the head), and her ability to produce sons, a typical rural Indian woman faces early marriage, high fertility, and many health problems (Jha, 1987).

Yesudian (1988) and Khan et al. (1986) studied health care utilization in urban and rural Indian families. They both concluded that the position in the family may affect the perception of the need for medical care, and therefore the use of services. The male head of the household may be given immediate care during illness because of elevated status, and because he is the main wage earner, while other family members' illnesses might be deferred.

4. Responsibility for health care decisions. The person who makes health-related decisions in a family will influence the frequency and type of health

services used. Although Kohn & White (1976) reported that in many families, because there is no specific person responsible for these decisions, most studies in developing areas have assumed that the male head of the household makes health care decisions (Kroeger, 1983a; Madan, 1969).

Cosminsky (1987) and Charyulu and Reddy (1987) disagreed with Madan's assumption. They argued first, that the question of who makes health care decisions has been inadequately researched in developing rural areas; and second, that women are the major health providers for families and communities, and are therefore not given credit for decisions they are already making. Regarding the choice of health care for family members, Charyulu and Reddy indicated that when asked, women preferred to consult qualified medical practitioners rather than "quacks" for any family member's illness.

Caldwell, Reddy, & Caldwell (1982) monitored family relationship changes in Indian families. Younger married women reported feeling closer in their relationship to their husbands, which affected the decision-making process. This study found that even though fathers sometimes helped with the decision, mothers were much more likely than husbands or parents-in-law to seek care. Additionally, younger married couples (who are more educated) are increasingly being asked by older family members to make family health care decisions. This direction in family decision-making is important, because Madan (1969) found that the age of the decision-maker was a determinant of the type of health care sought for particular family members. The younger the decision-maker, the greater the likelihood that an allopathic doctor would be chosen for the children.

5. Education (level of schooling). Education is known to be a determinant of values, beliefs, attitudes, and goals that influence health behavior. Cochrane, O'Hara, & Leslie (1980) and Fieldler (1981) discussed how education affects health

care use. First, education is essentially a proxy variable for taste. An individual with more education will know more about the availability of medical care as well as the benefits to be derived from their consumption. Second, education is an efficiency parameter. A better educated person is more aware of health problems, has greater access to health information, and uses the information more effectively to achieve better health.

Cochrane et al. (1980) reported an unequivocal relationship between higher maternal education and improved child and family health. Charyulu and Reddy (1987) described education for Indian village women as, "one of the most dynamic factors in development of rural areas" (p. 409). Although Caldwell, Reddy, and Caldwell (1982) indicated that presently in India, daughters-in-law are three times more likely than their mothers-in-law to be educated, literacy rates and levels of education among the Indian population are not equal. Literacy rates in rural Tamil Nadu are 66 percent for men and 34 percent for women (Government of India, Department of Statistics, 1986). Additionally, a lower percentage of girls than boys are enrolled in the formal educational system (Jha, 1983), and even fewer girls enrolled from the Scheduled Castes (Apte, 1979).

Health care use is affected by education. "Formal education is one of the severest exposures to Western culture" (Kroeger, 1983a, p. 150). In Taiwan, formal education turned villagers away from traditional healing (Kleinman, 1980). In India, the choice of a particular type of healer for sick children was related to the traditional or modern orientation of the parents (Bhardwaj & Paul, 1986). Higher use of cosmopolitan (qualified) physicians was attributed to parents of higher educational levels. In rural Ecuador, Kroeger (1982) discovered that the pattern of health care varied considerably between those villagers who had received secondary education and those who had received none. However, primary education had no

significant effect on type of care chosen. Wolfe and Behrman (1984) reported increased health care utilization among Nicaraguan women who were educated (and whose spouses were also educated) and had received health care in their childhood.

Higher levels of education are also associated with a higher social position, more income, and more resources for health care use. However, even in societies where financial barriers to health care have been removed, differential use patterns persisted among social groups (Kohn & White, 1976). Nichter (1984) found that the use of health facilities was not related to literacy per se. Socioeconomic class was also a factor. Educated people of the same socioeconomic class used the same cosmopolitan facilities and were willing to spend more money on health care. Bhardwaj (1975) added that in India, educational level was highly related to caste, and that this was also a factor in health care preferences.

Zurayk, Halabi, and Deeb (1987) suggested that the "average educational score of the family" (p. 173) provided a consistent measure of the discriminatory effects of social class on family health. In contrast to the usual determinants of social class which are determined by characteristics of the head of the household--occupation, education, and income--the educational score represented the combined educational levels of all adults living in the household. This measure reflects the changing family patterns earlier described by Caldwell et al. (1982) and acknowledges that all adults living in an extended family are likely to contribute to decision-making on health-related matters.

6. Socioeconomic level (caste, assets, occupation). Socioeconomic factors are closely related to enabling characteristics, but precede them in time and are less subject to change. They reflect the family's lifestyle (Fieldler, 1981). Studies by Beals (1976) and Yesudian (1988) in areas of India indicated that the type of medical care sought is influenced by the socioeconomic status of the family. Cosmopoli-

tan medicine was considered to be more prestigious and more expensive than indigenous medicine, and was reserved for the more economically productive family members. The relationship between higher socioeconomic status and the effort to seek allopathic health care has also been demonstrated in rural Nigeria, Mexico, and Egypt (Khan et al., 1986; Kroeger, 1983a; Morsy, 1980).

Several researchers have found that division of castes into high and low groups is a simple and reasonably accurate proxy measure of high and low socioeconomic status in Hindu communities (Nichter, 1984; Parker, 1986). Nichter's and Parker's studies revealed that government health facilities were used by people from all caste levels, but that higher caste families used additional allopathic services more, and spend more money for health care. Khare's (1963) earlier study of North Indian villagers showed that people of both high and low classes talked about the efficacy of Western medicine, but that those from the low class resorted to indigenous medicine during actual illness.

Parker et al. (1979) found caste to be significant when examined simultaneously with age and gender. High caste children and men used self-care more often than low caste children and men. Low caste women used self-care more often than high caste women.

Others have researched socioeconomic status in terms of occupation of the head of the household and family income. Bhardwaj and Paul (1986) investigated the type of health care used by parents of various occupational groups. Laborers and tenant farmers (lower socioeconomic group) took their children to indigenous practitioners and unqualified allopathic practitioners, while government employees used licensed physicians for their children.

Colson (1971) and Madan (1969) concluded that sufficient income was necessary, but not a sufficient determinant in the choice of health care. Madan deter-

mined that the most significant determinants of health care choice were occupation and income. Less prestigious occupations such as agricultural laborers and production workers favored allopathic treatment, possibly because they were able to use free government services. People having higher incomes also preferred allopathy, but were more concerned with the effectiveness of treatment.

Two studies done by Bhardwaj (1975) and Ramachandran and Shastri (1983) disputed the importance of occupation. Although Bhardwaj expected preference for health care to be dependent upon occupation and caste, he did not find this to be true. Ramachandran and Shastri surveyed 245 villages in South India, and did not find any differences in the use of government doctors, private practitioners, or traditional practitioners between various occupational groups. However, the least affluent agricultural laborers showed a higher proportion of non-treatment during illnesses.

Characteristics of the Illness and Perception

1. Type of illness. In his research in a Malay village, Colson (1971) found that features of the illness and degree of functional impairment were more useful in accounting for differential use of resources than were features of the individual suffering from the disorder. This is part reflects what Foster (1976) termed "folk dichotomy," the use of modern resources if the disorder is of natural origin and the use of indigenous sources if the illness was of supernatural causes. Stoner (1985) reported that this dichotomy is still appropriate in widely separated areas of the world.

Many variations of the folk dichotomy have been researched. For example, Nchinda (1977) found in Cameroon that parasitic and respiratory diseases evoked the greatest response for Western medicine, while mental disorders were treated by indigenous methods. Madan (1969) revealed that although allopathy is preferred

by urban and rural Indians, two-thirds of those surveyed make use of more than one medical system because some diseases are more readily "controlled" by a particular system. Beals (1976) and Parker et al. (1979) indicated that Indian villagers were likely to use home remedies for minor, temporary conditions such as headaches or common colds, but had fixed strategies (such as a known curer or hospital) when home remedies were not appropriate. When dealing with epidemics, villagers resort to eclectic strategies; almost anything was tried.

In other studies of Indian villages, Bhardwaj (1975) reported that preference for modern medicine depended upon the particular illness involved, and whether it was acute or chronic. Gould (1965) and Colson (1971) addressed this topic in earlier studies, and were among the first researchers to relate type of illness to perceived severity. They found that folk medical practices were employed with chronic non-incapacitating illnesses, while allopathic doctors were sought for critical incapacitating illnesses. Villagers turned to allopathic doctors when they were desperate. Dunn (1976) referred to this as "division of labor" (p. 154) in the medical community: the cosmopolitan system serves critical needs while the local indigenous system served chronic dysfunction.

2. Severity of illness. Severity of illness is difficult to separate from other variables, as is shown in the following studies. Young (1980, 1981) proposed that the principal criterion in the choice of treatment for Mexican villagers was the gravity or seriousness of illness. If the illness was not serious, and a home remedy was known, then self-treatment was initially chosen. If the illness was grave, and "costs" could be managed, the person resorted to a physician for help. If the condition was grave and the person was poor, she/he resorted to a local healer called the "poor man's doctor" (1980, p. 117).

Heilscher and Sommerfeld (1985) reported similarly from a Malay village that self-care was the first step. If this failed, the patient turned to professional advice. In severe acute cases, cosmopolitan treatment was believed to provide a quicker and more thorough cure. Egyptian villagers used both indigenous and cosmopolitan health care for symptomatic relief, but searched for physicians if the illness was acute and life-threatening (Morsy, 1980). Cosminsky's (1987) interviews with Guatemalan women confirmed that continuation or increased severity of an illness (usually marked by a high fever) precipitated the search for a physician only after least costly methods had failed.

Rao (1985) indicated that even if villagers preferred allopathy for all illnesses, they were still selective on the basis of severity. Routine illnesses were treated at primary health care centers that were geographically close, but serious illnesses were treated by private doctors who might be some distance away. Stock (1983) and Pearson (1988) emphasized the willingness of villagers in Nigeria and Nepal to overcome distance barriers if the condition was acute and serious.

3. Expected benefits of treatment. Kroeger (1983a) proposed that the expected outcome may be the basic determinant for resorting to a particular health service, and that this is closely linked to the type of illness and past experiences with treatment. Twenty years ago Madan (1969) wrote that the most common reason for the choice of treatment was the belief that the treatment would bring about a cure. Since that time, in India and other developing countries, efficacy has increasingly become the criterion for evaluating practitioners and the reason for searching for cosmopolitan health care (Bhardwaj, 1975; Good, 1987; Kroeger, 1983a). "Traditional medicine is losing ground to more efficacious modern medicine" (Minocha, 1980, p. 220).

Villagers have come to expect quick results and rapid recovery from allopathy. They preferred injections to pills and were disappointed if injections were not prescribed (Cosminsky, 1987; Bhardwaj, 1975; Nichter, 1983a). Young (1980) also reported this in Mexican villages. A person's "faith" in the practitioner actually referred to the type of medicine that was to be used. Doctors who used allopathic medicines were believed to be better healers.

Despite the status allopathy has for its efficacy, many villagers in Guatemala and Kenya believed that some disorders were better cured by traditional healers, or that some illnesses required different types of healers to affect a cure (Colson, 1971; Cosminsky, 1987; Mwabu, 1986). Good (1987) summarized this notion, "the patient's decisions are based on what each therapist can contribute to restoring well-being " (p. 236). Gould (1965) expressed this pragmatism in his study of Indian villagers faced with a smallpox epidemic. The acceptance of modern medicine didn't mean the rejection of indigenous medicine. Rather, most people "try anything that is available and culturally legitimate" (p. 207).

Characteristics of the Health Service (Enabling and System Factors)

1. Accessibility (distance and time). Good (1987) remarked that the geographic dimension in health care choice has received little research attention in medically pluralistic societies. Geographic accessibility was especially significant where the density of cosmopolitan health facilities were low and the transportation was difficult (Kroeger, 1983a; Stock, 1983). Stock has shown by aggregate rates the strong negative relationship between distance to the facility and rate of utilization. This information provided the rationale for catchment area sizes for rural government health facilities which have catered to patients living in close proximity to the

facility. Kroeger (1983a) added that in rural Ecuador, distance was related to the use of modern facilities, but not to the use of traditional healers.

Nichter (1984) noted that 90 percent of the patients at a South Indian primary health center lived within a 5 km radius from the center. In India and Nepal, Parker et al. (1979) found consistently that populations farther from government services had lower utilization rates and higher use of self-care.

In contrast, Rao's (1985) work demonstrated that even if people lived within 4 to 7 km of a PHC center, other factors determined if it was used. For example, Rao mentioned that women were more apt than men to visit the government center. Stock (1983) found that adults traveled farther than children for both outpatient and inpatient care, and that men traveled farther than women.

Others have related the influence of factors such as costs, quality of care, and severity of illness to the distance people are willing to travel for treatment (Cosminsky, 1987; Minocha, 1980). Stock (1983) wrote that Nigerian villagers would travel farther for specialized services or better quality care. Pearson (1988) and Bhardwaj and Paul (1986) indicated that villagers traveled long distances if the conditions were serious.

Several other researchers have found that geographic accessibility does not always increase utilization of a particular facility. Kroeger (1982) reported that although people in rural Ecuador verbalized a desire for modern health services, equalizing the geographic distribution of these services simply increased the population's tendency to "shop around." An unusual finding by Pearson (1988) was that distance was not a deterrent in the treatment for leprosy. Rather, distance afforded welcome anonymity for those who wanted to disguise their diagnosis and thereby avoid social ostracism.

Finally, Ramachandran and Shastri (1983) found that regardless of socioeconomic status, Indian villagers would travel long distances, particularly if the facilities near their homes were not satisfactory. The researchers concluded that the "movement for treatment is not only a matter of travel costs/accessibility, but also of benefits accruing at the terminal places" (p. 179).

2. Costs. Cost factors are not independent of "characteristics of the subject," because decisions about health care are made with regard to income/assets and expected benefit of treatment in addition to fees accrued in treatment. These variables are not easily teased apart. However, high costs (relative to one's resources) are frequently claimed to be a major constraint in obtaining treatment (Cosminsky, 1987; Kroeger, 1983a). Therefore, the assessment of fees is a major consideration for patients and medical personnel.

Nichter (1983a) found that payment in kind was acceptable for traditional healers, but not for allopathic doctors. Additionally, he reported the practice of "lay cost reckoning" (p. 962) as a means of assessing patient fees with cosmopolitan treatment. Doctors were aware that if medications exceeded lay estimations of reasonable cost, rural clients would not return. Therefore, patients who could afford more expensive treatment would be charged more to offset losses incurred by treating the poor (Nichter, 1983a; Rao, 1985).

Cost may be more important with respect to treatment compliance rather than in shaping the initial consultation decision, because the patient's purchase of prescribed drugs depends upon her/his income. Parker (1986) accounted for 80 percent of all costs associated with medical care in fees and drugs provided or prescribed. The inability to pay for prescriptions was a serious handicap, because it meant deferring treatment or not availing the full course of treatment. Even gov-

ernment health services that were free required the purchase of prescribed drugs (Cosminsky, 1987; Parker, 1986).

Differences in caste category have been shown to account for differences in the amount spent on treatment (Bhardwaj & Paul, 1986). Although high caste Punjab individuals spent 60 percent more than low caste individuals who used government services, both groups had significant out-of-pocket expenditures for private sector use. However, the most expensive visits were attributed to men.

Relatively high costs of traditional treatments and lower costs for allopathic treatments have been reported in Taiwan, rural Mexico, and Ecuador (Kroeger, 1983a). Parker (1986) concurred that there were higher travel costs for qualified ayurvedic practitioners and lower travel costs for other non-allopathic practitioners and government doctors. Costs also include the convenience of location and hours, length of waiting time, and costs of lost work time. Dissatisfaction with any of these costs was likely to increase the amount of "healer shopping" a patient was willing to do (Kasteler, Kane, Olsen, & Thetford, 1976; Kroeger, 1983a; Nichter, 1983a). Many villagers considered the expense of "free," inconvenient treatment at primary health centers comparable with the cost of private practitioners (Morsy, 1980; Nichter, 1983a; Rao, 1985). Khan et al. (1986) revealed that women in Uttar Pradesh only used government centers for 9 percent of the illnesses due to the inconvenience of clinic hours. All other cases were taken to private doctors.

3. Quality and appeal of care. Patient satisfaction has been useful in elucidating why people do or do not seek care, and as a predictor in patient compliance (Fieldler, 1981). Included in this category are the relative appeal of indigenous vs. cosmopolitan healers, the level of communication between healer and patient, and quality of health care administered (Kroeger, 1983a; Stoner, 1985).

Studies in India and other developing areas indicate that the under-utilization of existing rural government facilities was associated with dissatisfaction in the quality and quantity of services provided (Banerji, 1979; Kroeger, 1983a; Rao, 1985). In India, Taiwan, and Mexico villagers have expressed dissatisfaction with traditional healers because they were unable to cure many illnesses (Foster, 1977; Kleinman, 1980; Nichter, 1983; Young, 1980). Shariff (1987) noted that the perceived quality of services was associated with the size of town. Even if a government clinic was local, residents frequently sought treatment from private and public sources in larger nearby towns or cities. Also, some Indian villagers believed that PHC medicines were ineffective and requested that doctors prescribe medicines purchased from "outside" (Rao, 1985). Heendeniya (1987) further explained that the availability of sophisticated services in larger towns and/or by private doctors induced patients to doubt the quality of care that can be provided by smaller primary health care centers.

Others have noted that patients who are not favorably impressed with the doctor's personal qualities or communication skills will seek help elsewhere (Kasteler et al., 1976). Nichter (1983a) labeled this rapport "moral bonding"; Kroeger (1983a) used the phrase "shared knowledge and assumptions"; and Kleinman (1980) referred to this as knowledge of the "doctor's paradigm." The necessity of developing rapport between health personnel and patient was discussed by Kroeger (1982), who found that among Ecuadoran Indian populations, the reason most frequently voiced for not using modern health facilities was the perception by villagers of the "doctor's superiority."

Heggenhougen and Shore (1986) wrote that the "cultural distance" between patient and practitioner influenced the type of therapy chosen. Some patients choose traditional rather than allopathic treatment because they believed indige-

nous therapy left no gaps in treatment; it was not only concerned with how they became ill, but also with why they were ill.

In contrast, Shariff (1987) used a similar term, "social distance" (p. 351), quite differently. In this case, more rather than less social distance was a desired quality in the practitioner-healer relationship in Indian communities, as Scheduled Caste families objected to receiving treatment from medical practitioners of the same low caste.

Taylor (1976) also noted that social class was an important aspect in treatment choice. Among conservative upper class urban Indians, cultural pride and the association of *ayurveda* as elite medicine remained a factor in their reliance on traditional practitioners, even though the indigenous system has been gradually replaced by public and private cosmopolitan medical care. Dunn (1976) said the situation among villagers was different. Despite the high socioeconomic status awarded to *Vaids* by villagers, these practitioners were consulted by patients of any social status.

Summary

It is widely acknowledged that cultural beliefs and lifestyles influence illness patterns and health-seeking behavior. The entire experience of illness from an individual's perception of symptoms to her/his choice of treatment is culturally constructed. As such, a person's choice of health care is determined by the complex interaction of many individual and social variables.

Because health care exists in a cultural context, most health care systems are pluralistic to reflect the complexities of the social system. This pluralism is particularly evident in developing nations undergoing rapid social change. Within pluralis-

tic health care systems, people may utilize services exclusively, successively, or simultaneously from lay, folk, or professional sectors.

In India and other developing areas, women play a vital role as individual and community providers of health care which is heightened by their own health needs as mothers and family caretakers. Although it is known women act as primary agents of care, research is scarce about the role women have as health care decision-makers and regarding their opinions about present health care options.

In addition to including women in health care projects, the WHO has encouraged all countries to make primary health care available to all people, and especially to those in rural areas. Although India has adopted this plan, the pluralistic health care system also reflects the history of British rule prior to Independence and the heritage of Hindu, Buddhist, and Muslim cultures. Therefore, pluralism exists throughout the sectors of the Indian health care system, but more noticeably in underserved rural communities. Previous studies in India have shown conflicting information about which variables, or combinations of variables, are significant in explaining use (or nonuse) of indigenous and cosmopolitan health care services.

Utilization studies in India and other areas have attempted to identify which variables seem to be important in health care choice. Although past studies in developing countries have reflected either cognitive (decision-making) or correlational (determinants) approaches, more recent research has attempted to combine these efforts. The model used in this study was a modification of an international health care project and employed both approaches. The model organized independent variables into characteristics of the subject, characteristics of the illness, and characteristics of the health service. The dependent variable was choice of health service. Although the model reflected a correlational approach, it also accommodated cognitive aspects.

This South Indian study collected data which could be used to describe present health care utilization patterns and analyze factors related to treatment choice. The methodology used to collect and analyze this data is set forth in the next chapter.

CHAPTER III
RESEARCH DESIGN AND METHODOLOGY

This chapter on research design and methodology describes the research setting and procedures followed in the selection of the sample from two villages, development of the survey instrument, collection of quantitative and qualitative data, and data analysis.

Selection of Villages

The initial step taken in the selection of the villages was to consult with researchers at the local university in Coimbatore, Avinashilingam Institute for Home Science and Higher Education for Women (Home Science University), regarding the feasibility of the study and possible sample populations. At the suggestion of the Vice Chancellor of Home Science University, the researcher met with the director of the extension center associated with the Home Science University, which is located in the Karamadai Block in Coimbatore District.

This extension center, Krishi Vigyan Kendra (Farm Science Center) has provided short and long term extension education to villages in the western part of Karamadai Block. With the assistance of the staff at Home Science University and Tamil Nadu Agricultural University in Coimbatore, production-oriented training courses are offered both on the campus as well as in the villages in such disciplines as agriculture, horticulture, animal husbandry, and home science. Home science classes in income-generating activities and health/nutrition were attended by women from these two villages.

The director of the Farm Science Center and women extension trainers suggested Marudur and Bilichigoundenur as possible sample villages. The Center director and trainers located people in each village to serve as "contacts" in the villages and made arrangements for the researcher and the interpreter/interviewer to visit the villages and pre-test the survey. The contacts in Marudur were the government doctor employed at the village Mini-Health Center and a village resident who coordinated the village social welfare programs. These people introduced us to the Chief of Panchayat, the traditional and esteemed head of the village. The contact in Bilichgoundenur was a village woman who escorted the research group from the Farm Science Center to her village.

Research Setting

This study took place in two rural villages in the southern peninsular area of India. The villages, Marudur and Bilichigoundenur, are located in the Karamadai Block in Coimbatore District, Tamil Nadu (India) (Figures 3.1 through 3.3). Coimbatore District has an estimated population of over 3,000,000 spread over 7,469 sq km (Government of India, 1986). This area is essentially a high plateau bordered on the west by the Western Ghats. The mild climate supports tropical vegetation. There are two rainy seasons. The main monsoon occurs from June through August, and a shorter rain occurs during October and November. This study occurred during the hot dry season, from mid-February to early April.

Coimbatore district, with its large number of textile mills and production of handloom merchandise, is known as the "Manchester of South India." The district is also called "The Detroit of the South" because of heavy industry (Tamil Nadu, n.d.). The district and the city of Coimbatore support several universities, a medical college, and a number of technical institutions.

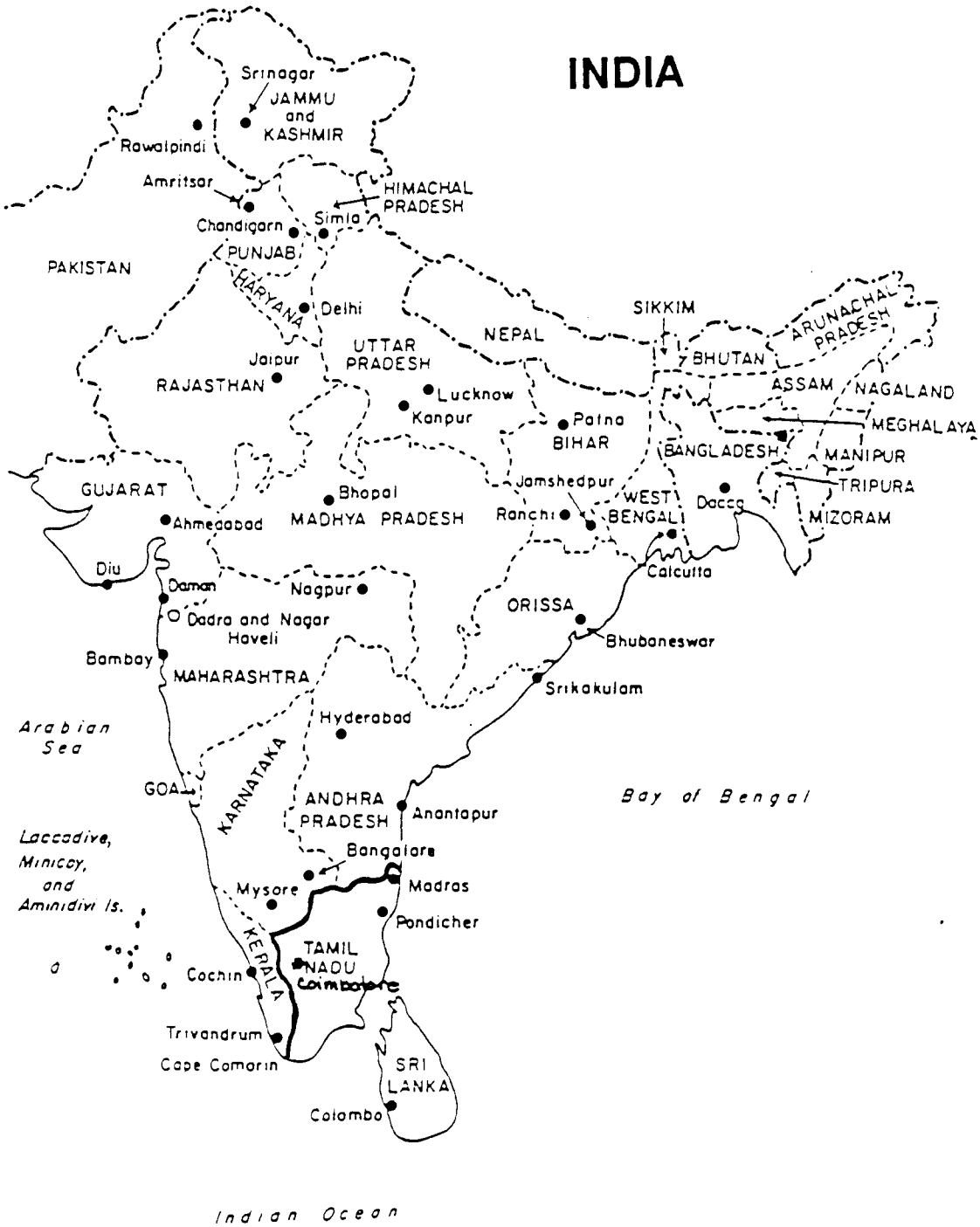

Figure 3.1 Map of India.

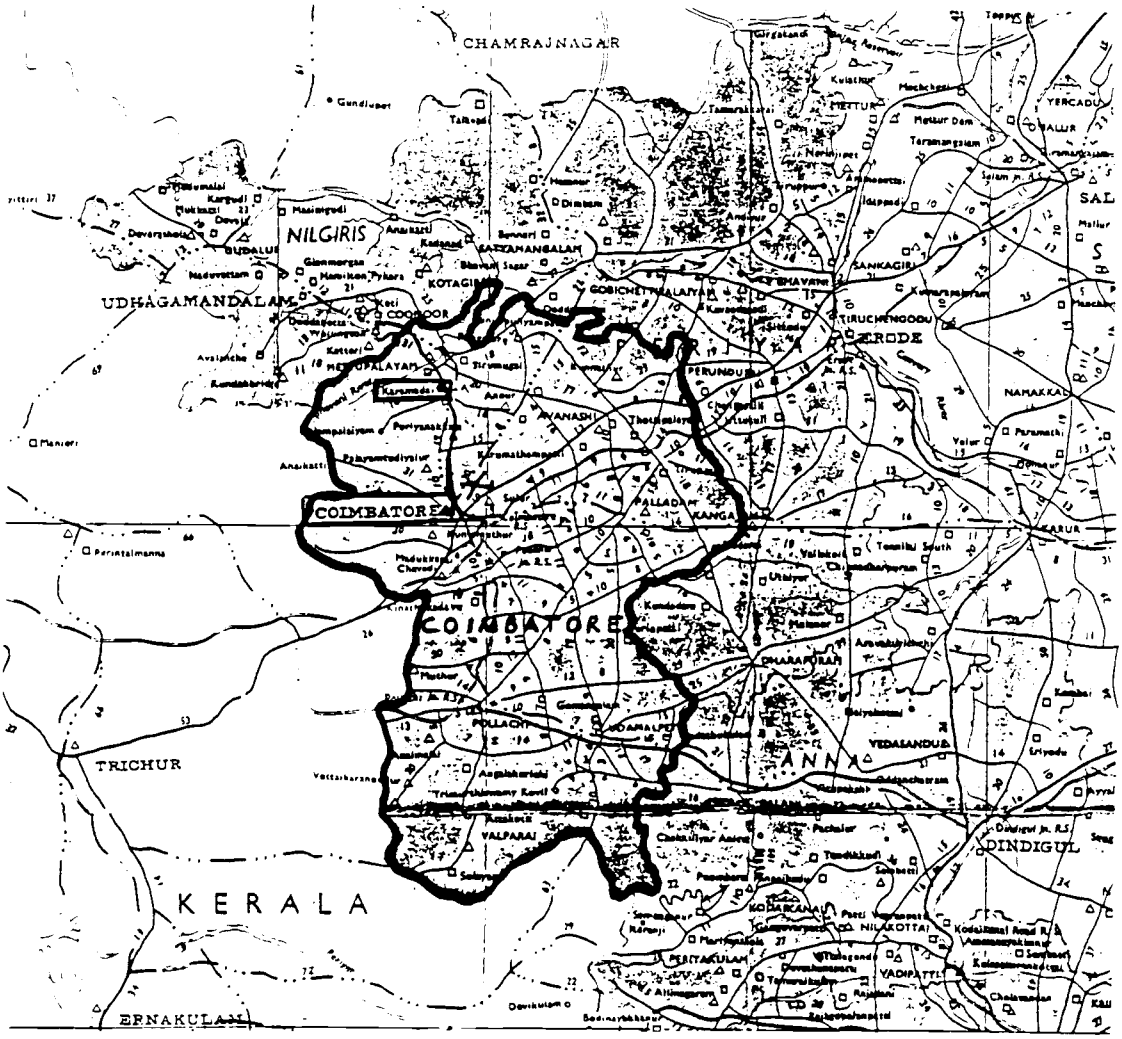

Figure 3.2 Map of Coimbatore District.

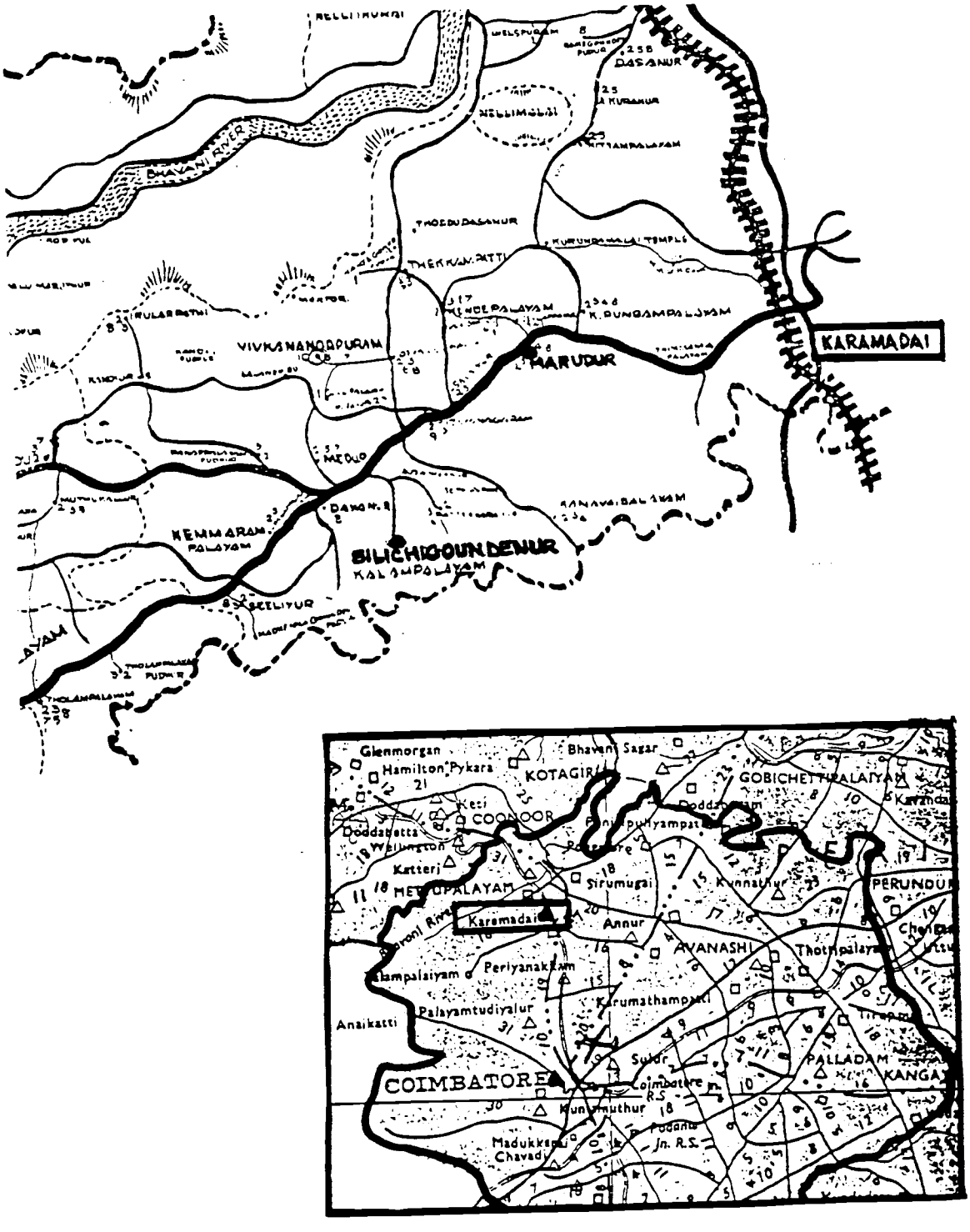

Figure 3.3 Map of Sample Villages.

The closest village (Marudur) was approximately 10 km from Karamadai, a medium-sized town, 20 km from a metropolis, and at least 40 km from the city of Coimbatore. Although both villages were the same size, there were geographic and socioeconomic distinctions between the two. Marudur was a roadside village of about 150 households that has daily access to a public bus system that travels to and from Karamadai, the major town in the Karamadai Block. Because it was only 2 km from the Farm Science Center, many women and men have participated in extension projects offered through the center. The access to public transportation also accounted for a higher proportion of employment in business, trade, and professional sectors. Average monthly incomes were higher and adults have had more schooling.

Marudur had two active social service agencies, the Youth Club and Women's Club. The Youth Club provided adult education for older boys and men, and assisted them in finding employment. The Women's Club facilitated the Noon Meal Program for grade school children and assisted in the immunization program.

The closest medical facility was the PHC Mini-Health Center located in the central part of the village. The center was staffed part-time by a government physician and his local assistant. The nearest PHC center, licensed (private) allopathic doctor, or medical shop was in Karamadai, which was 10 km from the village. An indigenous private practitioner was located in a nearby village. The closest government hospital was almost 20 km from Marudur.

The other village, Bilichigoundenur was 11 km from Marudur, but was located 2 km from the main bus route. This village was 5 km from the Farm Science Center and in the past has not been a recipient of the center's programs. There were no government or private doctors located in this village. The nearest medical

facilities for these people were essentially the same as those used by villagers in Marudur.

Apart from these differences, Marudur and Bilichigoundenur shared many environmental and social similarities. Approximately 150 families lived in both separate and contiguous dwellings. Most structures were constructed of white-washed brick and plaster with tile or thatched roofs. Animals were kept in open thatched roof sheds adjacent to the home. All roads to the villages and streets within the villages were unpaved. An untreated water supply to all but the Scheduled Caste was available at a centrally located power drawn tank or well. Each village had a rudimentary sewage system in which several ditches along the main street drained waste water from the homes and rain water.

Nearly all the homes were supplied with electricity which was used primarily for light bulbs and radios. No homes had refrigerators. Only a few had electric irons, sewing machines or fans. Meal preparation and eating was done on the floor of the home, as few homes had tables or chairs. Cooking fuel was wood or cow dung. As the homes were not equipped with plumbing, toilets were nearby open fields separated into sections for males and females. Many children used streets and walking areas for defecation.

Unsanitary conditions contributed to health problems common to these villagers such as intestinal worms, diarrhea, jaundice (hepatitis), and skin infections. Other endemic illnesses included upper respiratory infections (primary complex in children and tuberculosis in adults), measles, chicken pox, scabies, early stages of leprosy, nutritional deficiency diseases, and arthritis.

Both villages had a primary school for grades 1 to 5. Marudur's larger school had several classrooms and divided grades. Bilichigoundenur's one-room

school combined all five grades. Headmasters served as administrators and teachers. Additionally schooling after fifth grade was provided in neighboring villages.

Although some villagers were employed in the industrial sector of the economy, the main occupation of the household heads was subsistence farming of cash and food crops. Principal crops included *ragi* (a millet poor in nutritional quality), maize, pulses (legumes), coconuts, sugar cane, and jasmine. Vegetables and fruits were also grown, but most villagers relied on purchased rice, *ragi*, pulses, and curd (yoghurt) as staples in their vegetarian diets. Some villagers owned poultry and sheep which were used for consumption and/or goats for small scale milk production. Hindu customs prohibit cattle from being consumed, but buffalo were kept for their milk and oxen were used for hauling and agricultural work.

The caste and social structure of the two villages falls into the South Indian pattern described by Shariff (1987) in which smaller villages are composed of single and low-ranking Hindu castes. Lewis (1958) defined caste as

> an endogamous social unit, membership in which is determined by birth; it is often associated with a particular occupation and with restrictions about the acceptance of food and water from other caste groups. Castes tend to be ranked, with the Brahmans being traditionally assigned the highest social status and "untouchable" castes the lowest. (p. 55)

Untouchable castes were statutorily renamed Scheduled Castes after Independence. They were identified as socially and economically inferior to other Hindus and covered under a protective discrimination policy (Shariff, 1987). In both villages, the dominant caste category was the backward class, referred to by the villagers as middle class. The only other caste category was the Scheduled Castes (or low class) who lived in their own separate but adjacent colony.

The social structure of the family was patrilineal, and extended families lived at the head male's home. The eldest male member of the household was generally regarded as the head whether or not he was the main wage earner. Females were

household heads only in the case of widowhood and absence of other male members. Therefore, if the father lived with the son or daughter, the father was the head. If the widowed mother lived with the son or daughter, the son or son-in-law was the head.

Sample

The sample included three groups from the two villages: (1) adult women in randomly selected households in these two villages, (2) selected men from each village, and (3) selected practitioners/healers that provide health services to the people in these villages. The primary respondents were the adult women.

Household Selection

A total of 220 households from the two villages (110 from each village) were randomly selected, using house numbers and a table of random numbers. In Bilichigoundenur, random house numbers were drawn from the village census maintained by the school headmaster. In Marudur, random house numbers were drawn from a door to door census performed by the researcher and two assistants. Most households displayed painted door numbers. If the door was unmarked, the assistants asked the residents for household identification. This information was given in all cases.

Each village had approximately 150 households, so the sample of 100 households represented 67 percent of all households in each village. Although only 200 households were desired for analysis, the additional number initially selected was intended to offset any refusals and incomplete interviews.

The primary respondents were adult women who reported on their household's health care use. Many of the households were extended units. Therefore, it

was difficult to be completely uniform in the selection of respondent. In most cases, the respondent was the wife of the male head of the household. A smaller proportion of respondents were widowed women living with their sons and families, widowed women who were the household head, or the daughter-in-law of the household head. Any of the above adult respondents were appropriate sources of information about family use of health services in extended family structures (H. Berg, personal communication, November 17, 1988).

The protocol with each interview included: (1) an introduction by the interviewer to identify herself and the university affiliation, (2) statement of the purpose of the study, (3) discussion of the voluntary nature of the study and the option for the participant to choose not to answer questions, and (4) assurance of confidentiality of results. Research guidelines specified by the participating universities (Oregon State University and Avinashilingam Home Science University) and the Government of India were followed. In both villages the women were eager to discuss health care. The interviewers encountered no refusals and were able to complete every survey.

Selection of Village Men

Additional information was collected from village men. A total of eight men from the two villages were interviewed, using a survey designed to provide qualitative data about their experiences with illness and village health concerns. They were selected based on their ability and willingness to answer the questions. Because their responses were not analyzed statistically, no attempt was made to randomize selection or to assure that the views of these men represented the male voice of the community. The point of such interviews was to provide an alternate

perspective of health concerns, and to allow the researcher to informally compare responses by men and women from the same community.

Selection of Practitioners/Healers

Other qualitative health care information was collected from five doctors/healers or allied health personnel who were named village health care providers by the women respondents. These people included: (1) a government doctor practicing at the Mini-Health Center in Marudur, (2) the Medical Officer at the Karamadai PHC Center, (3) a Registered Medical Practitioner of allopathic and homeopathic medicine in a nearby village, (4) a midwife or "health expert" in Bilichigoundenur, and (5) a private practitioner in Karamadai who practiced an "integrated system of healing."

Survey Development

A questionnaire that was appropriate for the purpose of this study was not available. Therefore, development of the instrument was necessary and the following steps were taken.

1. The questionnaire was designed to reflect the purpose of the study and include first, questions about personal attributes, and second, questions regarding attitudes, beliefs, and behavior with respect to illness and the health care system. The first draft of the survey was prepared after an extensive literature review identified questions and concerns that appeared in previous Indian studies or in cross-cultural studies from developing nations. Studies reported by Kohn & White (1976), Kroeger (1983a), and Madan (1969) provided the framework for the conceptual model and identification of significant variables.

2. The researcher received assistance from the Survey Research Center at Oregon State University to organize the material in a logical format that could be easily administered and scored.

3. Recommendations by Kroeger (1985) to increase validity in health interview surveys were applied:

a) The use of tracer conditions has been reported to be an effective device to use in "standardizing" lay reporting of illness (Kroeger, 1982). Tracer conditions included popular expressions and culture-specific illness symptoms for certain diseases.

b) Short recall periods of three months or less offer a compromise between obtaining enough information about current illness and loss of accuracy due to memory lapses.

c) Coding of the particular respondent so that self-reporting could be distinguished from proxy-reporting was important with interviews taking place in extended families.

d) Opinion questions were related to concrete experiences of the people under study.

e) Questionnaire allowed for quantification of multiple use of health services which was essential in a medically pluralistic setting.

f) Small-scale studies are more apt to be culturally sensitive and may provide qualitative as well as quantitative information.

4. The researcher then consulted with local experts in the Coimbatore District to identify several endemic illnesses that were easily recognizable and reportable by the village women. This information was solicited from several sources: (a) a local university professor who researched and taught classes in nutrition, (2) the physician who practiced at the Mini-Health Center in Marudur, (3) a physician

who had a private family practice in Coimbatore, and (4) women trainers at the Farm Science Center.

From these suggestions, the researcher chose three illnesses to be included in the pretest, which were arthritis, respiratory illness, and worm infestation. The illnesses represented broad health categories identified by Antia (1985). Arthritis was selected because it is a minor illness that has been traditionally treated by folk practitioners or with home remedies, and primarily affects older adults. Worm infestation is common among all groups, but is not considered to be life-threatening and is frequently not treated. Acute respiratory infections (such as primary complex in children) are a major cause of death and require medical care.

5. The survey was pretested in both villages with adult women respondents.

6. Following the pretest, revisions in the instrument were made to reword some questions, to restructure the format for the convenience of the interviewer, and to add opinion questions that arose from qualitative statements made by women in the course of the interviews.

7. The final step in the development of the instrument was to consult again with the Survey Research Center to make any revisions necessary for analysis.

Data Collection

Both quantitative and qualitative information was obtained from the women participants, village men, and practitioners/healers using the following methods of collection: (1) interviews of village women using a structured survey, (2) interviews of selected village men using a guided interview format, (3) interviews of selected practitioners/healers and other health care personnel using a guided interview format, and (4) recorded observations and comments by the researcher about the set-

ting, people, events, and conversations. The survey and guided interviews are available in Appendices A, B, and C.

Structured Survey

The structured survey included open-ended and closed-ended questions regarding the following: (1) demographic and socioeconomic information about household members and (2) household and individual use of health services during illness. This latter section inquired about (a) treatment-seeking behavior when faced with common, endemic illnesses, (b) beliefs about the nature and causes of these illnesses, and (c) opinions about the present health care system.

The survey was administered in person to the women by two local interviewers who held graduate degrees in extension methods. Both were fluent in the local language (Tamil) and English. The interviewers were hired upon the recommendation of researchers at Home Science University and the Farm Science Center. The interviewers were experienced in administering village surveys and easily developed rapport with the villagers.

Prior to the fieldwork, a training session was held to review interviewing techniques, the purpose of the study, and specific details regarding the survey, research timetable, and evaluation procedures. Interviewer training procedures have been reviewed by Butz, Davanzo, Fernandez, Jones, & Spoelstra (1978). The training also included several "practice" interviews using the technique of "back-translation" (Breslin, 1970). This assured that the translation of questions written in English and asked in Tamil, and the translation of answers spoken in Tamil and recorded in English, were accurate and functionally equivalent (Feldman & Hollander, 1983).

Additional Interviews

Additional qualitative data was obtained from selected village men and health care personnel using the two interview guides developed for this purpose (Taylor & Bogdan, 1984). The layperson interview guide was used in collecting data from a total of eight men. The practitioner/healer guide was used in interviewing the following: a government doctor practicing at the Mini-Health Center in Marudur, a Medical Officer in Karamadai, a Registered Medical Practitioner in a nearly village, a midwife in Bilichigoundenur, a private practitioner in Karamadai, and a medical shop owner in Coimbatore. The researcher interviewed the government doctor, medical officer, and medical shop owner. The interviewers conducted the remaining interviews.

Design and Data Analysis

An ex post facto design was appropriate to examine the questions in this study. Kerlinger (1973) defines ex post facto research as "systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulatable" (p. 379).

Two major characteristics of ex post research design, according to the above definition are (1) an inability to have direct control of independent variables, and (2) the fact that the event, or dependent variable to be measured, has already occurred. Ex post facto has been found to be a useful approach in descriptive and correlational studies (Kerlinger, 1973).

Descriptive research involves collecting data in order to answer questions or test hypotheses about the current situation under study (Long, Convey, & Chwalek,

1985). Descriptive research typically employs questionnaires to collect detailed factual information, identify problems, and compare data (Issac & Michael, 1981). Based on this information, the descriptive method was appropriate for this study.

Prior to analysis, data from the questionnaires were numerically coded for computerized entry. Three separate files were created: (1) family file identifying demographic characteristics of each family member of each household, (2) demographic file containing socioeconomic information about the family and information about family use of health services, and (3) illness file representing treatment decisions and health care use during individual episodes of two separate illnesses. Open-ended responses (such as occupation, name of caste, cause of illness, and first treatment sought) were categorized and numerically coded.

The research hypotheses were tested using SPSS/PC+ V2.0, a statistical package for IBM personal computers (SPSS, Inc., 1988). Analysis techniques were used to contrast data, and included a combination of the following: the measure of central tendency (mean), frequency distribution, cross-tabulation, χ^2, analysis of variance, t-test, and multiple range test (Neuman-Keuls procedure). The level of significance for analysis was set at $\alpha = 0.05$.

The data were first described by the use of means, standard deviations, and frequency distributions. This preliminary analysis was followed by separate analyses regarding: (1) general pattern of household use of health services, (2) individual use of health services during particular illness episodes, and (3) analysis of attitudes about the health care system. The independent variables were demographic, socioeconomic, and cultural characteristics. The dependent variable in (1) and (2) was the type of health service used. The dependent variable in (3) was the attitude about the health care system.

Interval scale independent variables were appropriately analyzed with an analysis of variance (F-test), t-tests, and Post-Hoc procedures. The F-test and t-tests were used first to determine if there were significant differences in group means. Significant F-values were followed by Post-Hoc comparisons (Neuman-Keuls) to indicate where the differences existed (Courtney, 1982; SPSS, Inc., 1988).

Analysis of categorical data included the use of cross-tabulations in conjunction with the χ^2 statistic. The Chi-square, a test that compares observed frequencies with expected frequencies, indicated whether or not the frequencies observed were statistically significant.

Qualitative material obtained from the survey, interviews, and observations was used in descriptive reporting and was helpful in explaining the significance of quantitative results. The results of these analyses are presented in the following chapter.

Methodological Assumptions and Limitations

There were several methodological assumptions and limitations applied to this study, both in the design of the study and in collection of the data. First, the person's belief about her/his condition, rather than a clinically determined diagnosis, was assumed to be the initiating factor in seeking health care. Therefore, one limitation was that it was not possible to validate the accuracy of illness reporting by physical examinations or by checks on medical records, as these opportunities were not available to the researcher. Due to time constraints and logistical difficulties, it was not possible to reinterview the participants to check on reliability of the questionnaire results. However, to improve reliability and validity, the procedures recommended by Kroeger (1983b) were followed, as indicated in the survey development section.

Another limitation in the study related to its atemporal cross-sectional (rather than longitudinal) construction. Even though the experience of being ill and searching for health care is a dynamic process, the study reflects events that occurred within a restricted time frame.

Finally, the inability to generalize the results of this study to a larger areas of India was recognized as a third limitation. This limitation is inescapable in countries such as India, which are geographically large, heavily populated, and culturally diverse (Nichter, 1984).

With consideration given to these limitations, Chapter IV describes the results of the study.

CHAPTER IV
RESULTS

This research examined choices of health care made by ill family members with regard to demographic, socioeconomic, and cultural variables. In this chapter the study sample is first described. This is followed by presentation of the results of statistical analysis of the hypotheses tested.

Characteristics of the Study Sample

Respondents

The primary respondents in this investigation were women from two different villages. These women provided demographic, socioeconomic, and cultural information about their families, in addition to answering questions about family treatment choices. The average age of these women was 39.9 years; 75 percent of the respondents were married, 17.3 percent were widowed, 0.5 percent were separated, and 7.1 percent had never married.

The majority of respondents (90.8 percent) reported housework to be their usual occupation, and almost half of these women performed additional work outside the home. The most common "other work" was agricultural labor or farming. Agricultural laborers were not landowners, whereas farmers owned their own agricultural plot. Only five percent of the respondents worked outside the home in the business or professional sectors, which included tending or owning a small shop,

mill and factory work, or professional jobs such as teaching or factory supervisory positions.

Seventy-eight percent of the respondents considered their families to be middle caste, while 21.9 percent indicated their families were low (Scheduled) caste. The mean monthly family income was Rs. 458 (approximately $30).

Family Composition and Head of Household

The average number of family members per household was 3.9 with a range of one to eight members. Even though the families were not large, many were extended units, with in-laws, grandchildren, and adult children living in the same residence. In 70 percent of the households, the respondent indicated that her husband was the head of the household (Figure 4.1). In 16 percent of the remaining households, the respondent assumed the head position because she was widowed. The rest of the households were headed by other family members, usually adult sons or fathers-in-law.

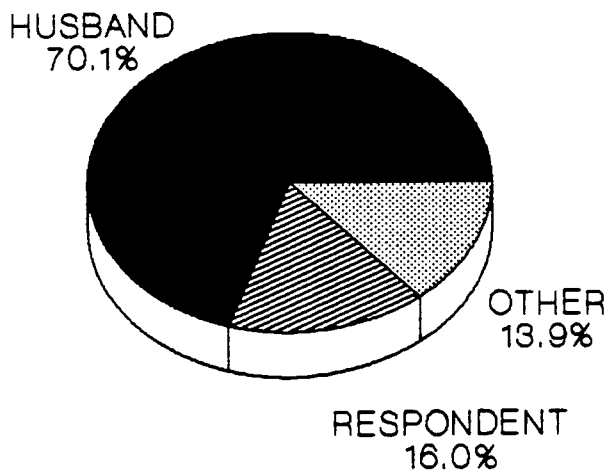

Figure 4.1 Family Members Listed as Head of Household (196 families).

The type of work associated with the head of household (including respondents' husbands as well as single or widowed adults) was more diversified than the work of the respondents. Figure 4.2 provides a comparison of the work performed by the respondents and the heads of households. Fifty-eight percent of heads were engaged in agricultural labor or farming, while 29.0 percent worked in the business or professional sectors. The majority of the heads (81.6 percent) did not have a second occupation. Generally, the respondent and the head of the household were two separate family members (i.e., the respondent and her husband). However, as indicated above, if the respondent was both widowed and the designated head of the household, her occupation was included in both the respondent and head of household categories.

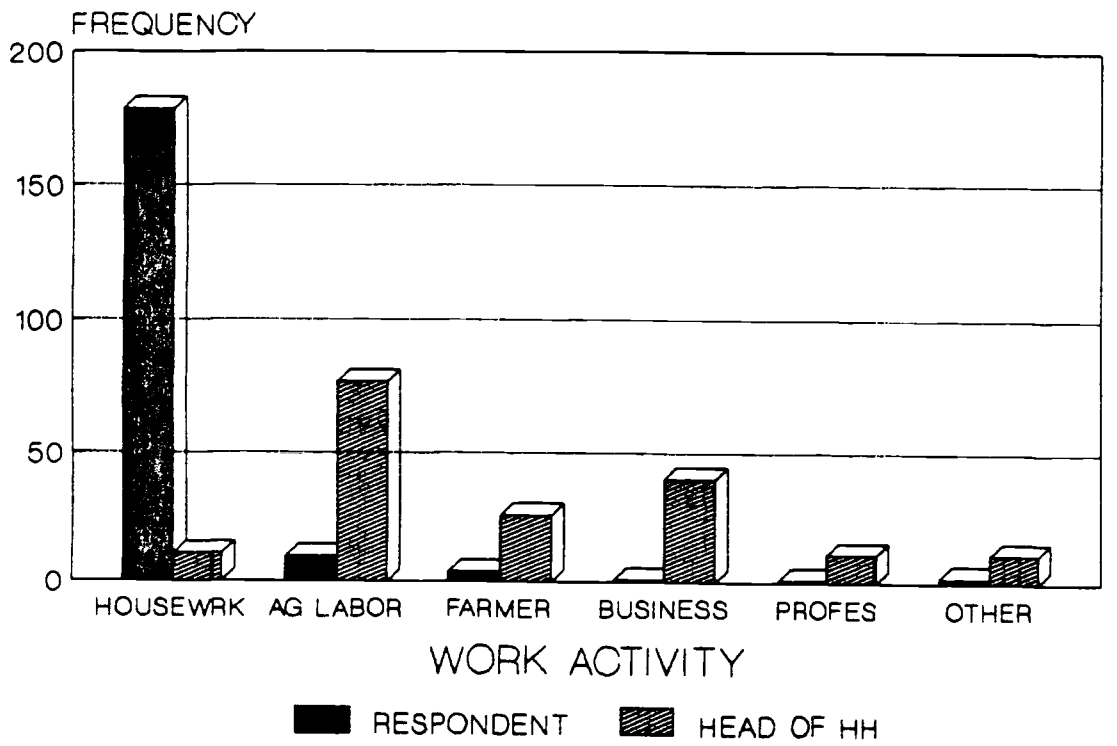

Figure 4.2 Usual Occupation of Respondents and Heads of Household.

Health Care Decision Maker

Family members who decided about the type of health care (if any) an ill family member would receive were defined as the health care decision maker. The health care decision maker was not necessarily the head of the household. As shown in Figure 4.3, in 64.6 percent of the cases the husband and wife jointly formulated this decision (i.e., respondent and wife are synonymous terms). In 17.4 percent of the households, the respondent headed the household and was the sole decision maker, whereas health care decisions were the sole responsibility of the husband 10.8 percent of the time. Finally, in 7.1 percent of the families health care decisions were made by family members other than the husband, wife, or widowed respondent, such as the in-laws.

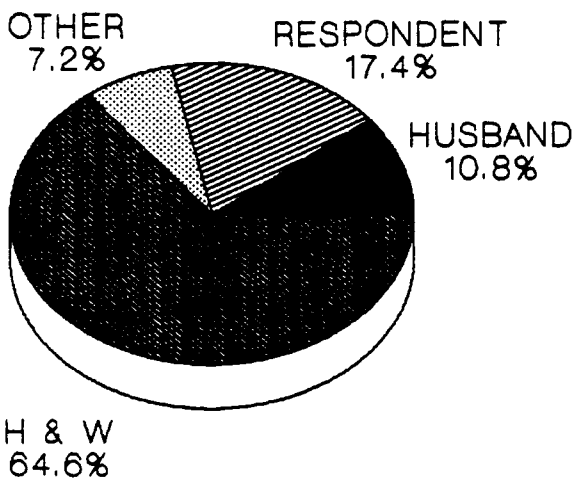

Figure 4.3 Family Member(s) Designated as the Health Care Decision Maker (196 families).

Mean values for the age and schooling of the health care decision maker were calculated. As shown in Table 4.1, the average age of the household decision

maker (either individuals or husband/wife jointly) was 43.7 years. The average educational level of the health care decision maker was 2.6 years of school.

Table 4.1 Age and Educational Level of Health Care Decision Makers.

Variable	N	Mean (year)	Std Dev	Min	Max
Age	180	43.8	14.0	16	80
Schooling	181	2.6	3.6	0	14

Statistical Analysis

Hypotheses testing was conducted using the SPSS/PC+ statistical package for the IBM (SSPS, Inc., 1988). The procedures used were dependent on the type of data to be analyzed. Categorical data were analyzed through the use of cross-tabulations (contingency tables) and χ^2 statistics to determine if the compared variables were significantly different from one another, while t-tests were conducted on interval scale data to determine if there was a significant difference between two sample means. The one-way analysis of variance (ANOVA) was employed to test differences between two or more group means. Significant F-values obtained through application of the ANOVA were analyzed by Post-Hoc tests (the Newman-Keuls procedure), which identified the groups between which significant differences existed. For all testing, a significance level of $p < .05$ was used.

Types of Health Care Available

The types of health care available for villagers to use when family members were ill included private doctors/practitioners, government doctors (or a PHC facility), *Ayurvedic* doctors, local midwifes, medical shops, or spiritual healers (see

Chapter II). Because the families may have chosen more than one type of health specialist in the three month period prior to the interview, it was necessary to identify all possible combinations of these six types of health care that the people might have used. Cross-tabulations revealed that out of the 16 possibilities, a substantial majority of households in both villages (85.2 percent) chose one of the following four health care use options: private doctor (43.9 percent), government doctor/PHC (13.8 percent), PHC and private doctor (16.3 percent), or no medical care (11.2 percent). This analysis is summarized in Table 4.2.

Table 4.2 Most Frequent Choices of Health Care Selected by 196 Households.

	Village					
	Bilichigoundenur		Marudur		Total	
Type of Care	N	(%)	N	(%)	N	(%)
Private doctor	33	(38.4)	53	(61.6)	86	(43.9)
Govt. doctor	15	(55.6)	12	(44.4)	27	(13.8)
Govt. doctor and private doctor	17	(53.1)	15	(46.9)	32	(16.3)
No health care	12	(54.5)	10	(45.9)	22	(11.2)

Testing of the Hypotheses

Based upon the pattern of household use of health care resources discussed in the previous section, the results of the hypotheses tested for this investigation are discussed in the following sections.

Hypothesis One

There will be no significant differences in the household use of health services with respect to demographic variables. Demographic variables included age, gender, household status, and educational level (years of schooling) of the decision maker.

Two-tailed t-tests were conducted for each type of health care to determine if different choices about household health care were dependent upon the age of the health care decision maker. As shown in Table 4.3, users and non-users of the midwife differed significantly with respect to the mean age of the decision maker, $t(179) = 2.32$, $p < .05$. Decision makers who chose the midwife were almost 12 years younger (32.6 years old) than those who did not choose the midwife for care (44.3 years old). Table 4.3 also shows that there were no significant differences in other choices of care with respect to the age of the decision maker.

Table 4.3 Differences in the Choice of Household Health Care with Respect to the Age of the Decision Maker.

Type of Care	Response	N	Mean Age (years)	p-value t-test
Private doctor	No	(55)	43.9	.895
	Yes	(122)	43.6	
Govt. doctor	No	(111)	44.0	.766
	Yes	(69)	43.3	
Ayurvedic doctor	No	(172)	43.9	.548
	Yes	(8)	40.8	
Midwife	No	(172)	44.3	.021*
	Yes	(8)	32.6	
Spiritual healer	No	(177)	43.7	.670
	Yes	(3)	47.2	
Medical shop	No	(171)	44.0	.300
	Yes	(9)	39.0	

* Significant at $p < .05$.

For each category of health care, t-tests were also conducted to determine if there were significant differences in choice of health care with respect to the mean educational levels of decision makers. Table 4.4 shows significant differences between the use and non-use of particular types of care with respect to the decision maker's educational levels. Decision makers who chose a private doctor had re-

ceived 1.5 years more schooling than those who did not choose this care, $t(179) = -2.56$, $p < .05$. Similar differences were found in the use and non-use of the midwife with respect to the educational levels of decision makers, $t(179) = -2.37$, $p < .05$. Decision makers who chose the midwife had almost three years more schooling than those who did not choose this type of care. Significant differences were found in the use or non-use of the government doctor with respect to the educational levels of the decision makers, $t(179) = 3.40$, $p < .05$. However, those who chose the government doctor had received 1.7 years less education than those who did not choose this type of care.

Table 4.4 Differences in the Choice of Household Health Care with Respect to Educational Level of the Decision Maker.

Type of Care	Response	N	Mean Schooling (years)	p-value t-test
Private doctor	No	(55)	1.6	.006*
	Yes	(126)	3.1	
Govt. doctor	No	(112)	3.3	.000*
	Yes	(69)	1.6	
Ayurvedic doctor	No	(173)	2.7	.548
	Yes	(8)	1.9	
Midwife	No	(173)	2.5	.019*
	Yes	(8)	5.6	
Spiritual healer	No	(178)	2.7	NA
	Yes	(3)	0.0	
Medical shop	No	(172)	2.6	.378
	Yes	(9)	3.7	

* Significant at $p < .05$.
NA = not available.

There were no significant differences in the use of the *Ayurvedic* doctor based on the educational levels of the decision maker. Also, as indicated in Table 4.4, t-test results were not available for the choice of spiritual healer. Because all

decision makers who chose this type of care had not attended school, the mean value had no variance and the t-test could not be conducted.

Additional information about the decision maker's educational level and caste was available. The t-tests revealed there were significant differences in the mean years of schooling of the decision makers from different caste levels, $t(179) = 2.91$, $p < .05$. Decision makers from low caste families had received less schooling (an average of 1.2 years) than those from middle caste families (an average of 3.0 years).

Chi-square analysis comparing household status (husband/wife jointly, respondent-wife, husband, or other family member) to the type of family health care selected revealed that health care choice was not significantly different based on the decision maker's status within the family. Regardless of who made health care decisions for the family, the private doctor was most often chosen to treat family illness.

In summary, the first hypothesis tested for significant differences in the household use of health care with respect to demographic variables. Because the choice of health care was significantly different based on the mean ages and mean educational levels of decision makers, the first null hypothesis was rejected.

Hypothesis Two

> There will be no significant differences in the household use of health services with respect to socioeconomic variables. Socioeconomic variables included family income, occupation of household head, family caste category, and accessibility of health service.

In the analytical procedures for household income, occupation, and caste variables, the type of health care was limited to the four most frequently chosen

alternatives listed in Table 4.2: private doctors, government doctors, the government/private doctor combination, or no health care at all.

The ANOVA revealed there were significant differences ($p = .005$) in the choice of private or government doctor between groups whose monthly income levels differed. Post-Hoc comparisons indicated that the families who visited private doctors had a higher average monthly income (Rs. 557, or $37) than those who used government facilities (Rs. 263, or $18)(see Table 4.5). Moreover, though the differences were not significant, Table 4.5 also indicates that families who used the combination of private doctor/government doctor had a higher monthly income than those who attended only government facilities or sought no care, again suggesting that the use of a private doctor requires greater monetary support.

Table 4.5 Differences in the Choice of Household Health Care Based on Mean Monthly Incomes.

Type of Care	N	Mean Monthly Income (Rs.)	S.D.
Private doctor	86	557*	504
Govt. doctor	27	263*	205
Private doctor and govt. doctor	32	411	192
No health care	22	385	203

* Significantly different at $p < .05$.
Note that at the time the data was recorded (February-April, 1989) the exchange rate was Rs. 15 = $1.00.

Choice of health care was compared to family caste level to determine if families from different caste levels made different choices about health care. Comparisons of low and middle caste categories with the most frequent choices of health care yielded a significant χ^2 ($df = 3$) of 18.39, $p < .05$. As shown in Table 4.6, a greater proportion of families who visited the private doctor, the private doc-

tor/government doctor combination, or who did not seek care, were of middle caste status. In contrast, equal numbers of families from each caste level visited the government doctor exclusively. Of the choices of health care listed, exclusive use of the government doctor was the type of care that drew a significant percentage of low caste families, whereas the other types of care were used in greater proportion by middle caste families.

Table 4.6 Comparison of Household Caste Levels and Choice of Health Care.

Type of Care	Low Caste N	(%)	Middle Caste N	(%)
Private doctor	9	(10.5)	77	(89.5)
Govt. doctor	13	(48.1)	14	(51.9)
Private doctor and govt. doctor	9	(28.1)	23	(71.9)
No health care	6	(27.3)	16	(72.7)

% = Row percentages
χ^2 (df=3) = 18.39 significant at $p < .05$

Additional information about the relationship between caste and mean family income was available. A two-tailed t-test indicated significant differences in the mean income levels of low and middle caste households, $t(194) = -3.54$, $p < .05$. The average monthly income of low caste families was Rs. 270 ($18), whereas the mean monthly income of middle caste households was significantly higher, Rs. 511 ($34). This means that middle caste families had slightly higher incomes than low caste families.

Comparisons of family health care choice to the occupation of the head of the household revealed no significant differences based upon χ^2 analysis. Although cross-tabulations showed that families headed by a member who worked in

the agricultural fields used the private/government doctor or no health care more often than families headed by farmers and businessmen, no statistically different patterns of use were found. Across all categories of occupations, the private doctor remained the clear choice of care for 55.5 percent of the families.

The fourth socioeconomic variable, accessibility, was defined as perceived convenience (of location and hours of operation of the health care facility) and travel time to the health care facility. Preliminary tabulations revealed that the majority of respondents believed the government doctor was inconveniently located and had inconvenient hours of operation, but that the private doctor was conveniently located (Table 4.7). The average travel time to government doctor facilities was 63.5 minutes; the average travel time to the facilities of a private doctor was 37.5 minutes.

Table 4.7 Opinions About the Accessibility of Government and Private Doctors.

Accessibility of Care	Response (n = 196) N	(%)
Govt. doctor location:		
Convenient	27	(18.9)
Inconvenient	113	(57.7)
Don't know	46	(23.5)
Govt. doctor hours:		
Convenient	37	(23.5)
Inconvenient	113	(57.7)
Don't know	46	(23.5)
Private doctor location:		
Convenient	149	(76.0)
Inconvenient	4	(2.0)
Don't know	43	(27.9)

Tests were conducted to determine if the villagers who traveled varying distances responded differently to the question of the convenience of the location of

the health service. A two-tailed t-test indicated that there were no significant differences in the mean travel time of groups who had opposing views about the convenience of the location of government doctors, $t(55) = .12$, $p > .05$. Similarly, there were no differences in the mean travel times of the groups who had opposite opinions about the location convenience of the private doctor, $t(132) = .-62$, $p > .05$. Individuals who perceived the doctors to be conveniently located traveled the same time to health facilities as those who perceived the doctors to be inconveniently located.

Because the villages were not at equal distances from health care facilities, cross-tabulations were conducted to determine if respondents from the two villages had opposing views about convenience of services. When the convenience of the government doctor's location was cross-tabulated for the two villages, significant differences were found (χ^2 (df = 1) = 4.03, $p < .05$). The majority of those who believed the location to be convenient lived in Bilichigoundenur. Only 30 percent who felt the government doctor was conveniently located lived in Marudur. However, when the convenience of the private doctor's location was cross-tabulated for the two villages, no significant differences were found. Even though people from Bilichigoundenur traveled further than those living in Marudur to reach the facilities of the private doctor, neither group perceived the private doctor to be inconveniently located.

Based on the above results for socioeconomic variables and choice of health care, the following statements can be made: (1) Families from different income levels differed significantly in their choice between private and government doctors; (2) families from different caste levels differed significantly in their choice of health care; (3) household choice of care was not significantly different based on the head of the household's occupation; and (4) villagers who had opposing views about the

convenience of government and private doctors did not differ in travel times to these facilities. Because of the significant differences in choice of health care with respect to monthly income and caste category, the second null hypothesis was rejected.

Hypothesis Three

> There will be no significant differences in the type of health service used by individuals during particular illness episodes with respect to demographic variables. Demographic variables measured were gender, age, and household status of the ill person.

The third hypothesis was investigated with respect to the type of treatment sought by individuals for arthritis and respiratory illness. Age was investigated only in cases of respiratory illness since arthritis affects only older adults.

1. Arthritis. Frequency tables indicated that no particular type of health care was preferred in the treatment of arthritis. Table 4.8 shows that the use of the private doctor was slightly higher than other choices of care, and that the use of the government doctor, home remedies, or no health care were also chosen. The choice of a spiritual healer to treat arthritis was rare.

Cross-tabulations for gender and type of health care yielded a non-significant χ^2, even though more women than men reported cases of arthritis and used some type of health care, including home remedies. However, the results demonstrate that although more women sought care for arthritis, both women and men tended to choose the private doctor, the government doctor, or no care at all when affected by arthritis.

No significant differences in health care choice were found based on the ill person's household status. Because arthritis was an illness affecting only older family members, those reporting the majority of cases were the respondent (55.4 per

Table 4.8 Type of Health Care Selected for the Treatment of Arthritis (57 cases reported).

Type of Care	N	(%)
Private doctor	18	(31.6)
Govt. doctor	13	(22.8)
Home remedy	9	(15.8)
Spiritual healer	3	(5.3)
No health care	14	(24.6)

cent), the husband (17.9 percent), and the in-laws (23.2 percent). Though the results were not significant, it may be observed that both respondents and husbands used private doctors more often than other types of health care, but the in-laws often chose not to seek care.

2. Respiratory Illness. Frequency tables showed different preferences for the treatment of respiratory illness. The majority of ill persons sought care from a private doctor (69.2 percent) or a government doctor (20.6 percent). Other types of health care, including home remedies, medical shop, spiritual healer, or no care, were infrequently chosen (Table 4.9).

An ANOVA was applied to determine if there were differences in the type of health care selected for respiratory illness based upon age. The mean age for those treated for this illness was 18.8 years (S.D. = 17.1). People of different ages did not select health care differently. Once again, most sought care from the private doctor or from a private/government doctor combination, and only a few sought other types of treatment for respiratory illness.

Table 4.9 Type of Health Care Selected for the Treatment of Respiratory Illness (111 cases reported).

Type of Care	N	(%)
Private doctor	74	(69.2)
Govt. doctor	22	(20.6)
Medical shop	4	(3.7)
Home remedy	3	(2.8)
Spiritual healer	1	(0.9)
No health care	3	(2.8)

No significant differences were found when health care sought for respiratory illness was compared to gender (i.e., of the ill person). Although there were more reported cases for females, both males and females sought similar types of care, which was most commonly the private doctor. The government doctor was chosen less frequently by both groups; other types of health care were rarely chosen.

Cross-tabulation of the type of care chosen for respiratory illness with the ill person's household status also yielded a non-significant χ^2. This illness was most often reported for sons (35.8 percent), daughters (32.1 percent), and respondents (16.0 percent). Additional information about other patterns of use were available. For example, respondents and children were the only reported users of a medical shop. Husbands reported either the use of a private doctor or no care at all, whereas respondents used a wider variety of health care, including private doctor, government doctor, medical shop, and spiritual healer. Home remedies were not used for any family members other than sons and daughters. Unlike arthritis, however, virtually all cases of respiratory illness were treated; only three cases were left without care.

In summary, the third hypothesis tested for differences in the individual choice of health care during episodes of arthritis and respiratory illness based on the demographic variables of age, gender, and household status. Although the types of health care sought for the two illnesses varied, separate analyses for each of the illnesses produced no significant differences with respect to these variables and type of care used. Therefore, the third null hypothesis was not rejected.

Hypothesis Four

> There will be no significant differences in the type of health service used by individuals during particular illness episodes with respect to socioeconomic variables. Socioeconomic variables included family income and costs of medical care.

The fourth hypothesis was investigated with respect to the type of treatment sought by individuals for arthritis and respiratory illness.

1. Arthritis. A one-way ANOVA was used to determine if individuals from families with differing monthly income levels chose different types of health care in the treatment of arthritis. The overall mean family income for individuals seeking treatment for arthritis was Rs. 411 ($27). Table 4.10 shows the mean incomes of groups seeking different types of care. Although no significant differences were revealed, it may be observed that those seeking the services of a private doctor tended to be from families with the highest mean family income (Rs. 492 or $33) and those seeking the services of a government doctor had the lowest mean family income (Rs. 308 or $21). Families with the second highest family income (Rs. 422 or $28) tended to not seek treatment. No one sought treatment from the spiritual healer for this illness.

Table 4.10 Monthly Family Incomes for Individuals Using Different Types of Care in Cases of Arthritis and Respiratory Illness.

	Arthritis*			Respiratory Illness*		
Type of Care	N	Mean Income (Rs.)	S.D.	N	Mean Income (Rs.)	S.D.
Private doctor	18	491	431	74	633	617
Govt. doctor	13	308	235	22	355	147
Home remedy	9	400	225	3	316	176
Medical shop	3	350	304	4	475	272
Spiritual healer	0	-	-	1	300	-
No health care	14	421	185	3	166	153

* $p > .05$ is not significant
Note: At the time the data was recorded (February-April, 1989), the exchange rate was Rs. 15 = $1.00.

A one-way ANOVA also revealed that family income levels were not different for individuals making different choices about the treatment of respiratory illness. The overall mean family income for individuals seeking treatment for this illness was Rs. 545 (approximately $36). See Table 4.10 for comparison of the mean incomes of groups choosing different caregivers. Although the differences were not significant, individuals treated by private doctors belonged to families with the highest monthly income (Rs. 633, or $42), whereas those individuals who did not seek health care lived in families whose income was much less (Rs. 167, or $11). Individuals who sought government care reported an average income of Rs. 355 ($24), an amount lower than those who sought services at a medical shop (Rs. 475 or $32).

A one-way ANOVA was used to examine differences in treatment costs between the types of care used to treat arthritis. Because there were no costs (and therefore no mean values) associated with the choices home remedy and no health

care, the analysis tested for differences in the mean costs of the other three types of care--private doctor, government doctor, and medical shop. Spiritual healer was not included in the analysis since none of the respondents indicated the choice of this type of care.

The analysis revealed there were no significant differences in costs between these three care groups. However, because the zero values of home remedy and no health care were outside of the 95 percent confidence intervals for private and government doctors, the costs for both private and government doctors were statistically different (greater) than those for home remedy or no health care, which were free. The confidence intervals for the medical shop choice did include zero. Thus, there were no significant differences in costs between the pairs medical shop and home remedy or medical shop and no health care. See Table 4.11 for comparison of mean costs for the different types of health care chosen for the treatment of arthritis.

Table 4.11 Differences in Mean Costs of Various Types of Health Care Used to Treat Arthritis.

Type of Care	N	Mean Costs (Rs.)	S.D.
Private doctor	18	55.3*	65.4
Govt. doctor	13	17.2*	19.5
Home remedy	9	0.0*	0.0
Medical shop	3	13.3	12.6
Spiritual healer	0	-	-
No health care	14	0.0*	0.0

* Significantly different at $p < .05$.
Note: At the time the data was recorded (February-April, 1989), the exchange rate was Rs. 15 = $1.00.

The overall average cost for the treatment of arthritis was Rs. 37 (approximately $2.50), but this cost varied with the choice of health care. Table 4.11 indicates the following significant differences: (1) Costs of a private doctor were clearly higher than costs of either treatment with a home remedy or no health care and (2) costs of a government doctor were significantly higher than the absence of costs involved with either a home remedy or no health care, both of which were free.

A one-way ANOVA was also used to test for differences in costs for the types of care used in the treatment of respiratory illness. Again, because the mean values for two of the choices, home remedy and no health care, were zero, these groups were omitted from the analysis. Moreover, since only one respondent chose the spiritual healer option, no variance was available for that group. Thus, the analysis was used to investigate differences in costs between the three remaining groups--private doctor, government doctor, and medical shop.

The one-way ANOVA and results of the Post-Hoc comparisons indicated that there were significant differences among the three group means (Table 4.12). The overall average cost for the treatment of respiratory illness was Rs. 32.2 (approximately $2.10), but this cost varied significantly with the type of health care used, as follows: (1) Costs for the treatment of respiratory illness by a private doctor were substantially higher than costs incurred at a government facility and (2) costs for treatment by a private doctor were higher than the costs of purchasing drugs at a medical shop.

Although the home remedy and no medical care groups were not included in the analytical procedures, the following results were in actuality statistically significant because the costs of consulting either a private doctor or a government doctor were different (higher) than either the home remedy and no health care options

Table 4.12 Differences in Mean Costs of Various Types of Health Care Used to Treat Respiratory Illness.

Type of Care	N	Mean Costs (Rs.)	S.D.
Private doctor	74	40.1*	32.9
Govt. doctor	22	11.2*	12.5
Home remedy	3	0.0*	0.0
Medical shop	4	1.5*	1.7
Spiritual healer	1	25.0	0.0
No health care	3	0.0*	0.0

* Significantly different at $p < .05$.
Note: At the time the data was recorded (February-April, 1989), the exchange rate was Rs. 15 = $1.00.

since the zero values attributed to the latter types of care fall outside of the 95 percent confidence levels for the costs of either a private or a government doctor.

In summary, no significant differences were found in the type of care chosen by individuals whose family income levels differed. However, health care for both arthritis and respiratory illness differed significantly in costs, with the highest fees attributed to the use of private doctors and the lowest fees (free care) attributed to home remedy or no health care. Insofar as the analysis indicated there were significant differences in costs for the types of health care used, the fourth null hypothesis was rejected.

Hypothesis Five

There will be no significant differences in the type of health service used by individuals during particular illness episodes with respect to cultural variables. Cultural variables included type of illness, severity of illness, expected benefits of treatment, and appeal/quality of care.

The illness episodes tested for the fifth and final hypothesis were arthritis and respiratory illness. Both illnesses were tabulated as either an acute or chronic condition, which was defined by the duration of the illness. An illness of short duration (three months) was determined to be acute; an illness of longer duration (six months to one year) was identified as a chronic condition. Arthritis was perceived to be both chronic and acute by 59 respondents, with 71.2 percent reporting it to be acute and 27.1 percent identifying it as a chronic illness. In contrast, 111 respondents clearly identified respiratory illness as an acute illness (91.0 percent). Only 8.1 percent of the respondents reported a respiratory illness considered to be a chronic condition.

Respondents indicated the severity of illness by rating how bothersome the illness was to the sick person, i.e., whether it was "very bothersome," "somewhat bothersome," or "not at all bothersome." A response of "very bothersome" indicated that the respondent perceived the illness to be of greater severity than one which was "somewhat" or "not at all" bothersome. No differences in health care choice based on the severity of arthritis were found. Table 4.13 summarizes the type of health care sought for arthritis in comparison to the perceived severity of the illness. The majority of respondents (82.1 percent) indicated that arthritis was somewhat bothersome, while only 17.9 percent indicated that it was very bothersome.

For respondents who indicated that arthritis was moderately severe, the first choice of care was divided between consultation of a private doctor and no health care. However, for this category, nearly as many people sought help from a third source--the government doctor. The choice of home remedy was more popular among those who believed the disease to be less severe.

Table 4.13 Comparison of Perceived Severity of Arthritis and Choice of Care (56 cases).

Type of Care	Somewhat N	(%)	Very N	(%)
Private doctor	12	(26.1)	5	(50.0)
Govt. doctor	11	(23.9)	2	(20.0)
Home remedy	8	(17.4)	1	(10.0)
Spiritual healer	3	(6.5)	-	
No health care	12	(26.1)	2	(20.0)
Row total:	46	(82.1)	10	(17.9)

% = Row percentages
χ^2 (df = 4) = 2.65, not significant at $p > .05$

Different patterns of health care usage emerged when the levels of severity of respiratory illness were cross-tabulated with the type of care sought in treatment. Although χ^2 analysis revealed no significant differences among the comparisons, several of the patterns established by the analysis are summarized in Table 4.14. The majority of respondents (77.0 percent) reported respiratory illness as only moderately severe, and the overall first choice of care was a private doctor. However, the vast majority of persons (in all categories of severity) sought care from either a private or government doctor. Moreover, if the respiratory illness was judged to be severe, the illness was not ignored; some care was sought in all cases. Most often this care was obtained from professional sources.

The final cultural variable considered was the reason for seeking treatment, in turn representing a combination of two variables, expected benefits of treatment and appeal/quality of care. Each respondent was asked an open-ended question asking why the family member had selected a particular type of care for the illness indicated. Open-ended responses for arthritis and respiratory illness were grouped

Table 4.14 Comparison of Perceived Severity of Respiratory Illness and Choice of Care (110 cases).

Type of Care	Not at All N (%)	Somewhat N (%)	Very N (%)
Private doctor	3 (75.0)	50 (64.9)	16 (84.2)
Govt. doctor	-	19 (24.7)	2 (20.0)
Home remedy	-	2 (2.6)	1 (5.3)
Spiritual healer	-	1 (1.3)	-
Medical shop	1 (25.0)	3 (3.9)	-
No health care	-	2 (2.6)	2 (20.0)
Row total:	4 (4.0)	77 (77.0)	19 (19.0)

% = Row percentages
χ^2 (df = 4) = 2.65, not significant at p > .05

and coded. The categories of reasons given for selecting care were different for the two illnesses, as are shown in Tables 4.15 and 4.16.

Table 4.15 Comparison of Reasons for Seeking Treatment and Choice of Health Care for Arthritis (row percentages).

Type of Care	N	Useful	No Money	Experience (doctor)	Convenient	Cure	Other
Private doctor	18	0.0	0.0	27.8	5.6	55.6	11.1
Govt. doctor	13	0.0	30.8	7.7	30.8	23.1	7.7
Home remedy	9	100.0	0.0	0.0	0.0	0.0	0.0
Spiritual healer	3	33.3	0.0	0.0	0.0	33.3	33.3
No health care	10	0.0	30.0	0.0	0.0	0.0	70.0

χ^2 (df = 20) = 90.75 significant at p < .05

Table 4.16 Comparison of Reasons for Seeking Treatment and Choice of Health Care for Respiratory Illness (row percentages).

Type of Care	N	Useful	Proximity	Experience Acuteness	Quality (doctor)	Others' Advice	No Money
Private doctor	73	35.6	8.2	6.8	38.4	2.7	8.2
Govt. doctor	22	9.1	22.7	4.5	4.5	4.5	54.5
Home remedy	3	66.7	0.0	0.0	0.0	33.3	0.0
Medical shop	4	50.0	0.0	25.0	0.0	0.0	25.0
Spiritual healer	1	0.0	0.0	0.0	0.0	100.0	0.0
No health care	3	0.0	0.0	0.0	0.0	0.0	100.0

χ^2 (df = 25) = 77.75 significant at $p < .05$

When the reasons for seeking treatment were compared to the type of health care chosen for arthritis, significant differences were found, χ^2 (df = 20) = 90.75, $p < .05$ (Table 4.15). The most common reason for selecting the government doctor to treat arthritis was lack of money (government doctors did not charge consultation fees) and convenience of location. Over half of the respondents indicated a choice of private doctor, based on the expectation of curing the illness, and a quarter of them indicated the doctor's experience was a key factor. Home remedy was chosen because it was believed to be a useful or successful treatment. Those who sought no treatment gave lack of money or other reasons for not seeking care. Those who sought help from a healer reported it would be successful in curing the illness.

Because the private and government doctors were chosen by over half of the respondents, the table was collapsed to include only the private and government doctors as the choices of care. Subsequent cross-tabulation of the reasons for seeking treatment and the choice of care also revealed significant differences, χ^2

$(df = 4) = 12.08, p < .05$. Private doctors were selected for their experience and ability to cure, while government doctors were selected because they were less expensive or more convenient.

When the reasons for seeking treatment were compared with type of care chosen for respiratory illness, significant differences were found, χ^2 $(df = 25) = 77.75, p < .05$ (Table 4.16). Unlike the care chosen to treat arthritis, 89.7 percent of the individuals went to either a private or government doctor for the treatment of respiratory illness. The overwhelming first choice for this illness was the private doctor. The reasons given for this choice were the quality of the doctor's services and the belief that the treatment would cure the patient.

The selection of the government doctor for treating respiratory illness was for different reasons. More than half of the respondents who chose this doctor did so because they had little money for a private doctor. One-fourth of the individuals chose this type of care because they believed the facility was in close proximity to their home. The few that chose either a home remedy or went directly to a medical shop said they did so primarily because it would be a useful treatment.

Additional analysis was performed using a collapsed table in which health care choices were limited to private and government doctors. Subsequent cross-tabulations of the reasons for seeking treatment with the type of doctor indicated significant differences, χ^2 $(df = 5) = 32.90, p < .05$. Reasons given for selecting the private or government doctor to treat this illness were the same as previously indicated.

In summary, for the fifth null hypothesis no significant differences were found for either arthritis or respiratory illness when illness type or illness severity was compared to the type of care selected. However, significant differences were found when reasons for seeking treatment were compared to the type of care used

in cases of arthritis and respiratory illness. For reason of these differences, the fifth null hypothesis was rejected.

Respondents' Opinions of Village Health Care

The final objective of the research was to analyze the opinions expressed by adult women regarding the health care system's potential to meet health needs of the villagers. Opinions were measured by respondents' answers to a series of statements about current health care and proposed changes in the health care system. Respondents were asked to "agree," "disagree," or register "no opinion" about each of the statements. Table 4.17 summarizes the percentages of responses for each of the ten statements.

In general, comments were supportive of increased educational efforts in the following ways: (1) Educate villagers about common illnesses, (2) provide scientific training for local healers, and (3) educate allopathic doctors about indigenous treatments. Other areas of general agreement included: (1) The desire to have a local, trained health worker in each village, (2) request that government services be more convenient, and (3) opinion that village women are more comfortable in seeing a female rather than male doctor for medical care.

The women had mixed opinions about whether or not health workers should be "outsiders" (statement 6). A large number had no opinion on the statement. One-fifth of the village women did not have an opinion of whether or not allopathic services were too expensive (statement 7). In addition, a majority did not have an opinion about the resolution of illness based on the type of medicine practiced by a doctor (statement 10). However, several women who understood and agreed with statement 10 elaborated: (1) Each type of medicine has its own successes;

Table 4.17 Adult Village Women's Opinions of Health Care.

Statement	N	Agree (%)	Disagree (%)	N.O. (%)
1. It is important for all villagers to be educated about diseases and illnesses	196	96.4	0.5	3.1
2. Our traditional (local) healers need more scientific training in curing diseases	196	95.9	0.0	4.1
3. Allopathic doctors need to know more about traditional medicine and treatments	195	95.9	1.0	3.1
4. Our village needs a trained health worker	196	91.3	2.1	6.7
5. Village health workers should be local people	196	89.2	4.6	6.2
6. Village health workers should come from outside the village	196	31.8	46.7	21.5
7. Allopathic health services should cost less	196	76.4	3.1	20.5
8. If government health services were closer (more convenient), my family would use them more often	196	86.2	5.1	8.7
9. Most women would feel more comfortable seeing a female doctor rather than a male doctor when they need medical care	196	91.3	0.5	8.2
10. Some illnesses are cured better by allopathic doctors and others are cured better by local healers or doctors of Indian Medicine	196	11.8	1.5	86.7

(2) Indigenous treatment is better for jaundice and arthritis; and (3) In comparing *Ayurveda* and allopathy, allopathy has a better rate of cure.

Two-tailed t-tests and a one-way ANOVA were conducted to determine if the women who responded differently to the statements differed in age or level of education. Table 4.18 shows the means and the results of the t-tests and Post-Hoc comparisons for which significant differences were found.

Table 4.18 Differences in Respondents' Opinions about Health Care With Respect to Age and Educational Level.

Statement	Response	N	Mean Age (years)	p-value
1. It is important for villagers to be educated about diseases and illness	Agree	188	39.6*	.052
	N.O.	6	51.3*	
8. If government health services were closer, my family would use them more	Agree	167	39.1*	.002
	Disagree	10	32.6*	
	N.O.	17	50.8*	
9. Most women would feel more comfortable seeing a female doctor rather than a male doctor when in need of medical care	Agree	177	48.7*	.010
	N.O.	16	39.0*	
			Mean School (years)	
10. Some illnesses are cured better by allopathic doctors and others are cured better by local healers or doctors of Indian Medicine	Agree	23	3.7*	.042
	Disagree	3	0.0*	
	N.O.	169	1.9*	

* Significantly different at $p < .05$

Group responses to the first statement regarding the importance of village-wide education about illness showed significant differences with respect to age when subjected to a two-tailed t-test, $t(196) = 1.96$, $p < .05$. Women who agreed with the statement were 11.7 years younger than those who expressed no opinion about the statement. This suggests that younger women were more likely than older women to register their opinions about health care concerns. This pattern also appeared in the following three analyses.

Using a one-way ANOVA, it was found that the group responses to statement 8, regarding whether or not the respondent's family would use government services more if the facilities were closer, differed significantly with the mean ages of the respondents. Post-Hoc comparisons indicated that those who had no opinion were older than those who either agreed or disagreed with the statement.

Significant differences with respect to mean age were found in the group responses to statement 9, which questioned if women would feel more comfortable in seeing a female rather than a male doctor. A t-test produced significant results, $t(193) = 2.59$, $p < .05$, revealing that the women who agreed with the statement were younger than the women who expressed no opinion about the statement. None of the respondents disagreed with this statement.

A one-way ANOVA found significant differences in responses to statement 10 with respect to mean educational levels. Post-Hoc comparisons indicated that the differences were between those who agreed and those who registered no opinion on the statement. Those who agreed had twice the years of schooling of those who registered no opinion (Table 4.18). Unlike responses to the other statements, question 10 accrued a large number of respondents (86.7 percent) who expressed no opinion.

Nearly all of the respondents responded to the open-ended question at the end of the survey, "Is there anything else you would like to say about health services in your village?" The women expressed a wide variety of responses indicated by the following needs expressed for both villages:

1) Permanent medical facilities in each village offering preventive and curative care;
2) Free medicines and free consultation with doctors;
3) Presence of a trained village health worker;
4) Local medical shop; and
5) Increase in doctor's hours at the Mini-Health Center in Marudur.

The women in Bilichigoundenur stated additional needs involving the broader health care system:

1) Extension of bus route to their village, and road improvements;

2) Post office and mail delivery;
3) More dependable safe water supply;
4) Permanent jobs to provide steady income;
5) Specialized health services for children and teenaged girls;
6) Organization of a women's club; and
7) Local *Ayurvedic* doctor to treat certain ailments.

Summary of Interviews with Village Men

Eight village men were also interviewed about their views regarding health care. These men responded to a series of open-ended questions found in the Layperson Interview (Appendix B). The men ranged in age from 22 to 67 years and most had lived their entire lives in the village. Six of the men reported they were the health care decision makers and only two reported that this responsibility was shared with their wives.

When asked if certain illnesses respond better to allopathy or indigenous treatment, three of the men explained that jaundice (hepatitis) and broken bones were medical problems that allopathic doctors could not cure. They reported the success of a home treatment for jaundice and services of a *Ayurvedic* doctor for broken bones.

The majority of men expressed needs similar to those of the women when asked about improvements in village health care. Their primary interest was in improving the number and quality of medical facilities, in conjunction with providing a safe water supply and job security. Several men reported that because so many villagers are poor and illiterate, few are knowledgeable about the basic principles of illness prevention, including the importance of nutrition, immunization, and safe water. Moreover, because many families lack the income necessary to pay for

health care, free services were necessary for widespread improvement in general health levels. Finally, the men suggested that leaders in the community, such as the village headman, teacher, or a doctor, would be the most effective health educators because they would be knowledgeable and accepted in their communities.

Summary

This chapter described the study sample, reported the results of the statistical analysis of the five null hypotheses, and summarized qualitative information gathered from women respondents and from interviews with village men. Each null hypothesis was tested using a methodology appropriate to the type of data collected. These methods included cross-tabulations and χ^2, t-tests, and one-way ANOVAs with Post-Hoc procedures. The purpose of the investigation was to determine if differences in health care choices were influenced by selected demographic, socioeconomic, and cultural variables.

The first null hypothesis was rejected because there were significant differences in the choice of family health care based on the mean ages and mean educational levels of decision makers. The second null hypothesis was rejected because families who chose between private and government doctors differed in their monthly income levels, and because families chose care differently based on caste level.

The third null hypothesis was retained because no significant differences were found in the individual use of health care during episodes of arthritis and respiratory illness based on age, gender, and household status. The fourth null hypothesis was rejected since significant differences were found in the costs of different types of health care. The fifth null hypothesis was rejected because significant

differences were found when the types of health care selected were compared to the reasons for seeking treatment for arthritis and respiratory illness.

In addition, this chapter includes a report on the opinions of women respondents regarding improvements in the health care delivery system. Statistical testing revealed that there were significant differences in the mean ages and educational levels of women who responded differently to statements about the health care system. Finally, this chapter included consideration of qualitative information gathered from village men regarding health care problems and suggestions for educational efforts. Discussion of the results reported in this chapter is included in the following chapter.

CHAPTER V
DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion

This chapter provides a discussion of the results of the analysis with respect to the theoretical framework of the study, draws conclusions based on these findings, and offers recommendations for application of the research and further study. The discussion is organized in three segments. The first two sections address the two major research questions, and the third section reviews information provided by respondents about the health care system.

Household Use of Health Care Services

The first research question asked if the household choice of health care would be significantly different based on demographic and socioeconomic variables. As indicated in the Chapter IV, the most common choices reflected by family health care decision makers included one of the following: the private doctor, the government doctor, combination private doctor/government doctor, or no health care. In support of the research completed by Antia (1985) and Lim Tan (1988) for transitional societies, the qualitative data showed that providers practiced an interesting combination of allopathy and indigenous medicine.

General Patterns of Household Use of Health Care Services

The private "doctor" visited most frequently by the families practiced in a nearby town (Karamadai) and was clearly viewed by the villagers as a caring

"professional." He was neither formally licensed as an M.B.B.S., nor affiliated with the Primary Health Care system. Rather, he was informally taught by his father, who had managed a medical shop. His practice was an "integrated system of healing," which included such allopathic procedures as the use of injections and antibiotics as well as indigenous therapies. This type of medical practice reflects the overlap between the professional and folk systems referred to by Kleinman (1980) and demonstrates how hybrid, pluralistic medical systems develop through the incorporation of cosmopolitan concepts and practices into indigenous systems (Gelb, 1984; Lim Tan, 1988).

Similarly, PHC facilities have integrated indigenous practices into a government-sponsored biomedical system of medicine. For example, the PHC Center in Karamadai and the larger district hospital provided options such as *Siddha* medicine and traditional birthing procedures, in conjunction with the use of cosmopolitan equipment, drugs, and procedures.

Several possibilities could account for the 11 percent of the families who indicated that they had received no health care in the three months prior to the study. First, these families may have not experienced illness during that time. Second, a family member might have been ill, but outside care may not have been sought. Third, some families may have tried home remedies, but this choice was not provided in this part of the investigation questionnaire.

Even though other choices of family health care were uncommon, villagers did occasionally confer with folk practitioners and an *Ayurvedic* doctor. The *Ayurvedic* doctor was not a popular choice, but *Ayurveda* has retained its reputation among these villagers as the preferred therapy for certain ailments, including broken bones, jaundice, and skin problems. The use of a spiritual healer was noted in

only three interviews. One respondent indicated that the spiritual healer was consulted to treat a daughter's mental illness.

Villagers also purchased drugs from a medical shop in Karamadai. The use of the medical shop was reported infrequently, not because villagers did not use prescription medicines, but rather because patients generally received (and paid for) medicines as part of the doctor's visit. Only when the doctor was unable to provide the appropriate medicine did the patient take a prescription to the medical shop to be filled. Occasionally, a family member purchased medicines for self-care.

Even though indigenous care was sometimes chosen by the family, cosmopolitan health care was the preferred type of treatment for family illness. The three most common choices of health care, a private doctor, a government doctor, or a private/government combination, were choices for cosmopolitan medicine, or allopathy. This preference for allopathy may in part be explained by the frequent, almost predictable use of injections and medication regardless of the patient diagnosis. Gelb (1984) and Kapil (1988) have explained that injections are preferred to pills because poor patients who must return to work and children who are very ill and malnourished need immediately effective doses. Moreover, uneducated patients may not readily follow a treatment regimen. Kapil (1988) also explained that the incentive for the doctor to medicate meets the social expectations of the patient and legitimizes the doctor's role. Discussions with health professionals confirmed this reasoning.

Within the cosmopolitan sector, there was a striking preference for private "integrated" care, in comparison to a similar system offered by government facilities, even though the private doctor often had less equipment and offered no specialty services. This finding is in accord with Kapil (1988), who noted that because many private doctors have modified their professional mannerisms to meet local

usage, they are regarded as more sensitive and caring than government salaried doctors who may have excessive patient loads and who are unable to accommodate family members who may wish to participate in the consultation. There are also other variables that may have contributed to this pattern of health care utilization.

Demographic and Socioeconomic Influences on Household Use of Health Care Services

An important aspect of this study was to analyze the variables which influence the health care decision maker since the family member responsible for health-related decisions in turn influences the frequency and type of care selected. The analysis produced surprising evidence regarding the family health decision maker. Although Kroeger (1983a) and Madan (1969) assumed that the adult male head of the household was also the health care decision maker, the results of this study have suggested otherwise. Even though the husband was designated the head of the household in 70 percent of the respondent families, health care decisions were typically arrived at jointly by the husband and wife(in 64 percent of the families).

This trend toward shared decision making has been identified as an important factor in the choice of health care, as younger married couples (who are increasingly more educated) are more likely to choose allopathic care for their families (Caldwell et al., 1982; Madan, 1969). These previous studies provided indications that the health care choice would differ due to age. However, the choice of the midwife was the only type of care that differed significantly with age, with younger decision makers choosing the midwife for their family more often than did older couples. The choice of midwife may also have been influenced by age, as it was common for village women to be attended at birth by the local midwife. In essence, the midwife was a specialist catering to younger childbearing families.

Although this investigation was not able to confirm other situations in which older couples made decisions about health care which differed from those of younger couples, the findings do support other research indicating that family decision makers, regardless of age, are more apt to choose allopathic treatment for their families (Cosminsky, 1987; Charyulu & Reddy, 1987). The frequent selection of private and government doctors confirmed the popularity of this type of care.

Based on earlier studies by Bhardwaj and Paul (1986), Kroeger (1983a), and Kleinman (1980) it was expected that this investigation would confirm that decision making couples who were more educated would be more likely than those with less education to choose cosmopolitan health care and less likely to choose indigenous caregivers. For reason of the overwhelming preference for cosmopolitan care in all circumstances, the research findings of this study do not support this assumption. However, the results did indicate that (1) decision makers who chose the private doctor and midwife had more schooling than those who did not make these choices and (2) decision makers who chose the government doctor had less schooling than those who did not make this choice. These results are in agreement with Nichter (1984) and Yesudian (1988), who noted that education per se was not a determining factor in the choice of health care because of the connection between education, age, and socioeconomic variables. This is particularly true when the differences in educational levels are small, as they were in this study (Table 4.4).

Although age appeared to be a discriminating factor only in the choice of the midwife, and not in other choices of care, schooling and age may be interrelated since the younger adults surveyed tended to be more educated than older adults. It is possible that the private doctor or the midwife might have been preferred by younger, more educated couples. It is also likely that the educational level of the decision maker influenced family income since the decision makers were usually the

wage earners for the family. Younger couples who are more educated may have the higher family incomes necessary to pay for the private doctor's consulting fees. This suggested link may help to explain why decision makers who chose the government doctor were less educated than those not making this choice. Moreover, it is possible to postulate that less educated couples perhaps had a preference for allopathic treatment (i.e., the government doctor), but did not have the financial resources to pay for a private doctor.

It was also noted that the decision makers in middle caste families had received more schooling than those in low caste families, and that the choice between private and government doctors differed significantly between low and middle caste families. The government doctor was selected by equal numbers of low and middle caste families, but the private doctor was used more exclusively by families of the middle castes. This result supports the earlier work of Nichter (1984) and Parker (1986), indicating that higher caste families may be willing to spend money for fee-for-service care rather than being satisfied with free government care. However, the results must be qualified since a greater proportion (78 percent) of village families were middle caste. The larger cell size attributed to the use of the private doctor by middle caste families may be biased by the disproportionately higher number of middle caste families in the study sample.

Because middle caste families had twice the income than the lower caste families, it is reasonable that families who visited only fee-for-service facilities (private doctors) were more likely to come from middle caste families with higher incomes. This was supported by additional tests which indicated that families which used the private doctor exclusively had the greatest income levels, whereas families which used the government doctor exclusively (where services were free) had the

lowest incomes. Families that selected the private/government combination had income levels in between the two extremes.

The results of this investigation do not support the proposal by Bhardwaj and Paul (1986) that the family's use of a licensed physician or unlicensed indigenous practitioner was dependent upon the occupation of the head of the household. Analysis determined that although the selection of the combination of private/government doctors or no health care was more often made by families headed by agricultural laborers than families headed by professional employees, the differences were not clearly distinguishable. It may have been that the cell sizes for some types of care other than the private doctor were too small to contribute to the existence of significant differences. In addition, given that the most preferred private practitioner was not a licensed physician, licensing may not have been a primary consideration in the selection of care for most of the respondents. It may be surmised that significant differences would have appeared if the health care choice had been examined simultaneously with the head's occupation and household income because, as indicated previously, families with different income levels did reflect differences in the choice of care, and income levels are closely tied to occupation.

Earlier studies have suggested that the geographic accessibility and perceived convenience of the facility have been factors in health care choice, particularly in rural areas where transportation is difficult (Good, 1987; Stock, 1983). In this study, transportation was very difficult for all villagers seeking health care. The trip to the selected health facilities involved walking in heat, riding a bus for a minimum of 30 minutes over rough, dusty roads, and waiting in line for the doctor's care. None of the respondent families had telephones with which to schedule appointments or inquire about office hours. The favored choice of private doctor was

located in the same town, Karamadai, as the government PHC clinic. A trip to the larger district hospital involved an additional 30-minute bus ride from Karamadai to a nearby metropolis, followed by a walk of one-half mile from the bus station to the hospital. The government sub-center in Marudur was excluded from this analysis since it was rarely used by the families who lived there and was not well known by villagers in Bilichigoundenur.

Perceived convenience of facilities was investigated as a factor in the villagers' preference of private doctors over government doctors. The majority of respondents reported that the government doctor's location and hours of operation were inconvenient, and that the private doctor's location was convenient. This may appear to be contradictory since the government and private facilities were located in the same town, and were of equal travel distances from the villages. However, many villagers did not use the PHC in Karamadai, but rather chose the more extended trip to the district hospital, which offered more inpatient services and greater degrees of specialization.

Although it seems that villagers who travel further to government facilities would naturally perceive the facility to be inconvenient, differences in opinions about convenience did not appear to be based on the length of travel time to either private or government doctors. For example, respondents who perceived the government doctor to be inconveniently located traveled the same length of time to the facility as those who believed the facility to be conveniently located. In fact, most of the respondents who indicated the government doctor to be convenient lived in Bilichigoundenur, which was the farthest away from any type of health care service. Additionally, the proportion of respondents who believed the private doctor to be convenient was equal in the two villages.

The results which demonstrate that perceptions about convenience were not necessarily dependent upon geographic location or travel time are helpful in explaining why geographic accessibility does not always increase the utilization of a particular facility, as has been suggested by Kroeger (1982). Informal comments by villagers were much more favorable toward private care than government health services, even though transportation to either facility was difficult. This qualitative data is in accordance with the proposal by Ramachandran and Shastri (1983) that treatment is not only a matter of estimating travel costs/accessibility, but also of the patient expectations about the benefits of treatment by a particular caregiver. The topic of patient expectations as a factor in the choice of health care is considered in the next section of the discussion.

Use of Health Care Services to Treat Arthritis and Respiratory Illness

The second research question asked if individual family members who were ill with arthritis or respiratory illness made significantly different health care choices based on demographic, socioeconomic, and cultural variables. The results showed that the overall pattern of health care use was different for the two forms of illness. In the treatment of arthritis there was no clear preference for a particular type of health care. The use of the private doctor was slightly higher (18 percent) than the two other most common choices of care, the government doctor (13 percent) or lack of care (14 percent). Home remedies were used in 9 percent of the cases and a spiritual healer was consulted only 3 percent of the time. In contrast, most (70 percent) of the episodes of respiratory illness were treated by the private doctor, while the government doctor was selected in only 21 percent of these cases. Other types of health care, including home remedy, medical shop, spiritual healer, or no health care, comprised the remaining 8 percent of care selected. The remaining part of

this section discusses the factors which may contribute to the differences in care selected for the treatment of these two forms of illness.

Cultural Differences and Choice of Health Care Services for Arthritis and Respiratory Illness

Because illness is a culturally constructed experience, it was expected that the type of care selected for arthritis and respiratory illness would differ with regard to cultural factors. The cultural variables considered included the type of illness (either chronic or acute), severity of illness, and reasons for seeking treatment (a combination of expected benefits of treatment and appeal of care).

Earlier studies have noted that the type of illness is a factor in the selection of health care. A widely shared belief is that cosmopolitan is more effective in treating acute disease; whereas indigenous treatment is more likely to relieve symptoms of chronic disease (Bhardwaj, 1975; Colson, 1971; Wolffers, 1988). Although this study did not test for differences in care based on the type of disease, the respondents were asked to discuss the duration of the illness. Based on the duration the illness was then identified as acute or chronic, with acute illness lasting less than three months and chronic illness lasting longer than three months. Because the majority of the respondents indicated that both forms of illness (according to this definition) were acute, the perceived severity of the illness as another cultural variable that might have been influential in the choice of health care was investigated.

The majority of respondents (82 percent) perceived arthritis to be "somewhat bothersome," which was defined as moderately severe. The type of care selected by these respondents was approximately equally divided between the private and government doctors, and two other options of less relative popularity. However, more than 26 percent of the arthritis cases believed to be moderately severe were left untreated (Table 4.13). Although significant differences in the choice

of treatment were not found between groups who perceived severity differently, the data indicated that a home remedy was selected more frequently by those who believed the disease to be less severe. These results suggest agreement with Morsey (1980) and Young (1980), who noted that villagers initially turn to self-treatment or ignore the illness if it is not serious. A common home remedy for arthritis was to grind the leaf of the *neem* tree or the *ragi* root, mix either powder with water, and apply the mixture externally to the swollen joints to reduce pain and inflammation.

The majority of respondents also perceived respiratory illness to be "somewhat bothersome." However, almost 90 percent sought care from either a private or government doctor, and the private doctor was again the caregiver of choice. It may be that because respiratory illness was endemic in the area, the villagers did not perceive it to be severely limiting. However, they clearly recognized that the symptoms associated with respiratory illness (e.g., fever, cough, lethargy) required treatment with allopathic therapy. Additionally, when respiratory illness was judged to be severe, the illness was never ignored and the private doctor was the choice of care. Wolffers (1988) may have been correct when he noted that "diseases with fever are more frightening than those without, and one will thus consult a practitioner in an earlier stage" (p. 551). This type of response also supports Rao (1985), who indicated that serious forms of illness were treated by private rather than by government doctors. This information appears to conflict with other sources, who have written that professional care was sought only when self-care failed (Cosminsky, 1987; Heilscher & Sommerfield, 1985). It may be that self-care remains the choice of care in remote areas where health facilities are inaccessible. The villages in this study were rural but not remote, which may account for the evidence that self-care was rarely chosen for these forms of illness.

Results from the comparison of choice of care to a third cultural variable, the reasons for seeking treatment, revealed that patient expectations of treatment were important considerations in the selection of health care. An individual's selection of treatment for either arthritis or respiratory illness was significantly different, based on the reasons given for selecting the particular type of care. For example, in the treatment of arthritis the private doctor was selected because of the expectation of being cured or past successful experiences with the doctor's treatment, which is in complete agreement with Madan's (1969) 20-year old study and later research by Good (1987) and Minocha (1980).

Reasons for selecting the government doctor were identified with finances and accessibility; the family was either unable to pay for a private doctor, or it was believed that the government doctor was conveniently located. Expected efficacy of treatment was not listed as a reason for choosing the government doctor. The 25 percent who did not seek care for arthritis listed financial exigency and other reasons (e.g., "arthritis is not curable anyway"). This is congruent with the work of Cosminsky (1987) and Kroeger (1983a), which noted that costs are a major constraint in obtaining treatment. It may also be true that health care was not always sought for arthritis since it was generally believed that the treatment would be futile.

In contrast to the care sought for arthritis, the majority of persons visited the private doctor when ill with respiratory infections. The principle reasons given for this choice were the quality of the doctor's services and the efficacy of the treatment. The minority who visited the government doctor explained that they could only afford free services. In examining these choices, it was noted that a visit to either the private or government doctor meant that the treatment would involve allopathic medicine. Villagers expressed a sense of security about the treatment if al-

lopathic medicines were used. The treatment for respiratory treatment typically involved one or more injections and antibiotic tablets. Doctors and villagers reported informally that this was the expected form of treatment because it was immediately effective and ensured a rapid recovery. This research supports studies by Nichter (1983a) and Young (1980), who proposed that a patient's faith in the doctor may actually be a demonstration of faith in certain medicines.

However, though both the private and government doctors used allopathic medicine, it was clear that private doctors were preferred for the treatment of both forms of illness. In both situations, and particularly for those cases involving respiratory illness, the base-level free government facilities were bypassed in favor of private fee-for-service doctors. Reasons for choosing the private doctor over the government doctor have previously been investigated (Rao, 1985; Wolffers, 1988). One explanation given for the widespread preference for private doctors is that patients were more satisfied with the care provided them. In this study, respondents frequently indicated dissatisfaction with the services of government facilities. Crowding, impersonal staff, and inconvenient hours were examples given for the dissatisfaction with the quality and quantity of services. Since government doctors and other health personnel carry heavy patient loads and have limited supplies, it is understandable that patients might be less than favorably impressed and be led to seek the more personal care offered by private doctors. Discussions with villagers and private doctors confirmed that the rapport between patient and doctor was extremely important in assuring patient satisfaction, and that doctors who expressed kindness and concern for their patients were popular caregivers.

Socioeconomic Differences and Choice of Health Care Services for Arthritis and Respiratory Illness

Previous studies of health care services have shown that socioeconomic factors influence the choice of treatment (Fieldler, 1981; Madan, 1969; Parker, 1986; Yesudian, 1988). In this study, individuals choosing different types of care for arthritis or respiratory illness did not reflect significantly different income levels. This appears to refute earlier results indicating that families who chose the private doctor had higher incomes than those who chose government facilities. It is possible that income differences did not appear due to the unequal variances in mean income values, which could have contributed to a large error term. Large differences in the standard deviation were noticeable in income values for those who used the government and private doctors to treat both forms of illness (Table 4.10). It is also possible that differences in choice of health care did not appear to be based on income levels because of unequal cell size. The large number favoring the private doctor for the treatment of respiratory illness may have skewed the results so that actually significant differences in health care choice were obscured.

Although the results did not indicate that individuals made significantly different choices about health care based on socioeconomic variables, it was observed that when arthritis and respiratory illness were treated outside the home, family income levels were highest for those who visited the private doctor and lowest for those consulting the government doctor. Moreover, individuals from families with the highest incomes used the private doctor and paid consulting fees, while those with the lowest incomes sought no care. Respiratory illness was almost always treated, usually by seeking professional help and less often by reference to home remedies or the purchase of medicines at a shop. As noted by Bhardwaj and Paul (1986), even families with higher incomes incur significant out-of-pocket expendi-

tures for private sector use. The average cost for a single doctor's visit for either illness was approximately Rs. 35, representing approximately 8 percent of a family's average monthly income.

Previous studies by Cosminsky (1987) and Kroeger (1983a) demonstrated that high costs relative to resources are a major constraint in obtaining treatment. The results of this investigation have shown (1) that the private doctor was significantly more expensive than either no health care or home remedies and (2) that the government doctor was significantly more costly than either no health care or home remedies. Informal discussions with private doctors confirmed that although private doctors almost always charge fees, the charge a patient receives was often dependent upon her/his ability to pay. The term "cost reckoning" used by Nichter (1983a, p. 962) was applicable to the current study insofar as patients who could afford more expensive treatments were often charged more to offset losses incurred by treating the poor. In addition, some private doctors were able to reduce the medication fee by giving out samples provided by sales representatives from pharmaceutical companies.

It may seen contradictory that government facilities (with no fee-for-service charge) were more costly than home treatment or no health care. However, patients visiting the government doctor were often asked to fill a prescription at a medical shop if the drugs were unavailable at the government facility. Conversations with doctors indicated that they were aware that many villagers were unable to pay for prescriptions, even when the consultation was free of charges. As Cosminsky (1987) and Parker (1986) previously noted, this often meant that necessary treatment would not be obtained.

Despite the higher monetary costs attributed to private doctors and the lower costs attributed to government doctors, costs also include the convenience of

location and hours, the length of office waiting time, and the costs of lost work time. As indicated above in this discussion, the villagers repeatedly expressed more dissatisfaction with government care than with private care, noting the inconvenience of location and hours, the crowded facilities, and the lack of a caring atmosphere among the staff. Consequently, the majority of villagers indicated they would prefer to pay for a private doctor than to use the free government facilities. This information supports observations by Morsy (1980) and Rao (1985), who claimed that villagers considered the expense of "free," inconvenient treatment at government centers comparable to the cost of services provided by private doctors. As the trend toward the choice of private doctors continues, it may mean that government centers will become increasingly focused on serving families that simply cannot afford any other kind of care.

Demographic Variables and the Choice of Health Care Services for Arthritis and Respiratory Illness

Although previous research suggested that the choice of health care was dependent upon such demographic variables as age, gender and household status, this information was not supported in the current study. As only adults over the age of 40 were affected by arthritis, health care choice was not analyzed with age as an independent variable.

In contrast to arthritis, respiratory illness affected all ages and the mean age of illness, at 19 years, was much lower. However, differences in the type of treatment selected were not based on age, as suggested by Shariff (1987). If children were ill, the health care decision maker (who was usually the husband/wife couple) probably made the treatment choice. As indicated earlier, health care choice was not significantly different depending upon the age of couples making these decisions, other than for the midwife. Because the private doctor was clearly preferred

for family care, it follows that the private doctor (using allopathic medicine) would also be the main choice of care for respiratory illness.

The results also demonstrated that choice of health care did not differ based on the gender of the individual seeking care. Although more cases of arthritis were reported for women than men, both women and men chose similar care. Respiratory illness affected equal numbers of females and males, and both genders preferred the private doctor for care. Although choice was not significantly different based on gender, it was noted that men and women chose health care differently. Females were more apt than males to use a variety of services in addition to the private and government doctors, including the medical shop, home remedies, spiritual healing, or the *Ayurvedic* doctor. Males simply chose between the use of private doctors or no health care at all.

The choice of health care for arthritis or respiratory illness did not differ based upon the household status variable. Regardless of their position within the household, adults chose private doctors for themselves, and as health care decision makers also made this choice for their children. This information contradicts observations by Iseley (1988), Khan et al. (1986), and Yesudian (1988), who indicated that males received elevated status within their families and were more apt to receive care than other members.

The distinct choice of private doctor for family and individual use (particularly in cases of respiratory illness) helps to explain why choice of care did not depend upon household status. The desire to be cured quickly by allopathic remedies and to receive quality care from a doctor may be influential in the choice of the private doctor for all family members, regardless of their household position. Moreover, the widespread existence of joint decision-making patterns and increased governmental efforts to educate females as well as males may negate these

differences. It may be foreseen that differences in health care choice will become less pronounced as the educational level of women increases and health care decisions become a shared responsibility by both husbands and wives within families. Increased opportunities for education and decision-making may have affected the willingness of the women to share their opinions about the health care system, a topic that is explored in the following section.

Women's Opinions of the Health Care System

The respondents were asked for their opinions on 10 statements about health care and were also asked if they had further comments about the health care system. Among the themes which evolved from these responses, the foremost was that the women desired more health education for themselves and their fellow villagers. Although they were not always in agreement as to whether or not the village health workers should be local or from the "outside," they overwhelmingly favored receiving more information about disease prevention and the treatment of minor illness. Those who indicated that village health workers should be "outsiders" explained that the anonymity of a health worker would be desirable, and that an "outsider" would have more expertise regarding health matters. In addition, the respondents expressed interest in forming a local women's group to facilitate educational and participatory health education efforts. The issues of participation and empowerment surfaced in these interviews--elements found to be essential in the successful implementation of health improvement projects in India and other developing areas (Antia, 1985; Chabot & Bremmers, 1988; Madan, 1987; WHO, 1980).

A second theme expressed by the women, and agreed to by the men interviewed, was the provision of medical care both in greater quantity and quality.

There was strong sentiment for the provision of permanent medical facilities offering preventive and curative care and the need for permanency of services was emphasized. Many said that the reason they did not visit the Marudur sub-center was because it was not open when they needed care. The private doctor in Karamadai appeared to be available more often when they needed his services, and therefore was viewed as a more dependable caregiver.

The women expressed preference for female doctors for their own care. In this rural setting, the women (and, to a degree, supported by the men interviewed) regarded childbirth and gynecologic health problems to be within the female domain. Informal discussions with several doctors confirmed the reluctance of women to share "their" health issues with men.

Both women and men requested free medical services. Many who consulted with the private doctor said they really could not afford to pay the heavy cost of private services, but did so anyway because they felt the care would be better. Additionally, those who used the "free" government care sometimes were required to purchase medicines unavailable at the government hospital. Unfortunately, the prohibitive cost of these medicines could serve to deter needed care.

The women believed that both cosmopolitan and indigenous doctors should be expected to provide successful, quality care. They specified that in order to provide more comprehensive care, indigenous doctors should receive more training in allopathic therapies and cosmopolitan doctors should have knowledge about indigenous treatments. Because pluralism still exists as a practicality for these rural people, it was their expectation that doctors have the ability to integrate the best qualities from both cosmopolitan and indigenous systems.

A third theme expressed by the women (and by the men interviewed) was the need to link health care to the wider social, political, and economic systems.

This was evidenced in their responses to the question, "Is there anything else you would like to say about health services in your village?" Although particular medical needs were specified, many villagers went beyond this area to discuss basic environmental health problems, such as the need for a safe, dependable, and year-round water supply. The women frequently acknowledged that their present water supply was a cause of disease. Economic issues were detailed, i.e., permanent jobs would provide steady family incomes so they could pay for health care when necessary and buy food and clothing for their families. Women in Bilichigoundenur were particularly vocal about governmental provision of communication and transportation services; they asked that the bus route and mail service be extended to the village.

A final theme emerged from comparisons of the comments between older and younger women. The younger generation of women were more eager to participate in the survey and more opinionated about what changes might be initiated in the health care system. The observation that older women were more apt to have "no opinion" might be explained by social influences that have precipitated relationship changes in Indian families. As implied by Caldwell et al. (1982), a younger married woman is now recognized as a partner with her husband in the family decision making process, and health care decisions are made by the younger couples even when older members are present. This supports prior research (Bald, 1983) which has noted that the forthrightness of the younger generation of women is a necessary force in the restructuring of the Indian health system so that the "Health for All" goal becomes a reality as well as an objective.

Summary

Current evidence indicates that the majority of rural people in India do not have access to the health care system and are not protected from common diseases that can be eradicated. Although it is known that pluralism in health care choice exists throughout the sectors of the Indian health care system, previous studies have demonstrated conflicting information about which personal and social variables offer significant explanations of the use (or nonuse) of indigenous and cosmopolitan health care services.

The purpose of this investigation was to determine if selected personal and social variables influenced the types of health services generally used by ill family members, and to determine if these variables influenced the individual choice of health care in treating arthritis or respiratory illness. An additional objective was to report opinions expressed by the women respondents about the adequacy of the present health care system in meeting their family needs. The theoretical model organized independent variables into characteristics of the subject, characteristics of the illness, and characteristics of the health service. The dependent variable was the choice of health service.

The primary respondents in the study were adult women from 200 randomly selected households in two villages in the Coimbatore District, Tamil Nadu, India. Interviews with these women provided qualitative and quantitative information about the household use of health care and the individual choice of care in cases of arthritis and respiratory illness. Additional data was gathered from several village men and health care providers.

The data was analyzed using statistical procedures appropriate for the data considered. These procedures included frequency tables, cross-tabulations and χ^2,

t-tests, one-way ANOVAs, and Post-Hoc tests. Results indicated that there was widespread preference for the private doctor as the family choice of health care. However, significant differences in the choice of the midwife, the private doctor, and the government doctor were based on the decision makers' ages and educational levels. Respondents' opinions about improvements in the health delivery system also differed, dependent upon age and educational level. Although most women desired more health education and more and better quality health care, younger women were more apt than older women to verbally express their opinions.

The type of care chosen by families differed according to two socioeconomic variables, family income level and caste category. Families who used private doctors had higher family incomes and were more often middle caste, whereas those who patronized government facilities were more likely to have lower incomes and be members of lower castes.

Individuals seeking care for arthritis opted for a variety of services--the private doctor, government doctors, or sought no care at all. In contrast, individuals desiring treatment for respiratory illness clearly chose the private doctor. The choice of health care differed for neither illness due to the individual's age, gender, or household status. However, it was apparent that individuals who chose the fee-for-service private doctor were from families having higher monthly incomes, while those choosing the free government doctor were from families having smaller incomes. It was also shown, based on geographic location and office hours, that respondents perceived that the private doctor was accessible, whereas government doctors were inaccessible.

The findings also demonstrated differences in choice of health care for arthritis and respiratory illness based on cultural variables. The predominant rea-

son given for selecting the private doctor for these forms of illness was the efficacy of treatment and quality of the doctor's services. In contrast, the government doctor was chosen primarily for reasons of financial exigency.

Information informally gathered from village men revealed their concern for increasing educational efforts and health care facilities so that all families would have access to basic care. They also identified larger social issues linked to poverty as barriers to health and well-being.

Conclusions

The following conclusions may be drawn from the findings reviewed in the preceding section. First, during the three-month period prior to the survey, family health care during illness was most often sought from cosmopolitan rather than indigenous sources. The most common choice of family care was the private doctor, followed by the government doctor and a combination of private/government doctors. Though government services were used by some respondents, the private doctor was the usual provider of curative health care for families in this rural area.

Second, differences in the family use of health care appeared to be influenced by the educational level of the family health care decision maker and family income levels. Decision makers who chose the private doctors were more educated than those who did not make this choice, and the opposite was true in the choice of the government doctor. The type of care selected also differed depending upon income levels and caste category. Families who used private doctors were able to pay fees associated with this type of care because they had higher family incomes and were more often of a middle caste, factors which appeared to be interrelated. In contrast, the families who used the government doctors were more often from low caste families with lower monthly incomes.

However, caution must be used in attributing the use of different facilities to one or more factors. Certain methodological limitations may have contributed to error in the analyses performed. First, cell sizes for the different categories of health care were clearly unequal. Second, variables were not examined simultaneously to define which variables were the most discriminative factors in the choice of care.

A third conclusion is that the type of care sought for arthritis was different than that sought for respiratory illness, and that these differences were attributed to socioeconomic and cultural variables. In the treatment of arthritis there was no clear preference for a certain type of caregiver. Because arthritis was regarded as a recurring as well as incurable condition, people "shopped around" for a successful treatment, sometimes resorted to indigenous home remedies, and often did not even treat the illness. However, in cases of respiratory illness, patients completely bypassed the lay system for private or government allopathic care.

The use of health care for either illness did not differ based on the individual's age, gender, or household status. However, the cost of care (both financial and from the standpoint of convenience) was an important issue for those visiting government facilities and was a factor that seemed to distinguish the use of the private doctor from the use of government doctors. Respondents chose government care because it was free and the only option left to them, though they perceived the government services to be inconvenient, were dissatisfied with long waiting lines, and doubted the quality of care. In contrast, those who had slightly more financial resources overlooked the seemingly prohibitive fees charged by the private doctor since they believed the doctor would provide the quality care that would cure their illness.

Most villagers expected that allopathic therapy involving injections and antibiotic tablets were more likely to quickly cure acute and more serious disorders such as respiratory illness. This perceived efficacy of allopathic care accounts in part for the popularity of private doctors who used this type of therapy, and the infrequent patronage of practitioners who relied on indigenous therapies. Although government doctors also treated with allopathy, the people attributed this use to financial reasons rather than beliefs about the success of treatment.

A fourth conclusion is that despite the popularity of cosmopolitan medicine, indigenous medicine has not disappeared. Because both private and government doctors acknowledged that indigenous remedies may be superior in the treatment of particular forms of illness, many combined indigenous and biomedical principles in their practices. In addition, villagers did not question doctors regarding their licensing status, but were more concerned about costs, the time involved, and the type of care they might receive. Therefore, some private doctors were professionally trained in medical schools while others learned their trade from a family member or other folk healer, and both were considered to be allopathic doctors. The type of pluralism that results from the overlapping of the folk and professional systems, and the complementarity of the indigenous and cosmopolitan systems, appears to be a natural consequence when one type of care is either medically or culturally inadequate to meet the health needs of the people.

Fifth, it may be concluded that these villagers recognized that poor health resulted as much from deficiencies in the larger economic and social context as from those in the health care system. These problems have not gone unnoticed; the results of India's 7th Five-Year Plan are visible in such ways as the expansion of the PHC system, the provision of electricity to village homes, housing for the Scheduled Caste, increased literacy, and government health services for the poor. However,

many villagers indicated that continuing poverty, lack of steady jobs, poor transportation, untreated water, and poor nutrition exacerbated illness and made the acquisition of health care a difficult prospect. Despite the grim prediction that the poorest will continue to struggle to find adequate care, these people want to be involved in improving their own health. Their interest was most strongly expressed in the desire for village-wide education in illness prevention and basic health care, and in the provision of free, dependable local health facilities.

A final conclusion is that these village women exhibited considerable influence in the choice of health care for the family, and felt free to express their opinions about health needs for their families and the community. The fact that health care decisions were most often arrived at jointly by the husband and wife, rather than the head of the household, was an important finding in the study since it supports recent evidence of changing relationships within Indian families. It was also evident that younger, more educated women were increasingly outspoken in their opinions about making changes in the health care system. Younger women were also more adamant about the government's need to simultaneously increase educational opportunities and reduce poverty while seeking the means to provide more and better health services.

Recommendations

The first recommendation recognizes the limitations of an exploratory study. This study did not attempt to control for certain variables while testing for differences, and the findings must be evaluated accordingly. Further research should be conducted to intensively examine the effects of particular variables while controlling for others. For example, the simultaneous analysis of variables which could be interrelated (e.g., the decision maker's age, educational level, caste, occupation, and

income level) with the choice of health care could provide information about which variable was more discriminative in the choice of health care.

It is also recommended that in future similarly structured studies that the data from each surveyed village be separated prior to analysis, particularly when examining health care choice based on socioeconomic factors. Because the purpose of this study was to provide a representative description and not to distinguish between the two villages regarding health care use, the responses from both villages were grouped. However, it was found that there were socioeconomic differences between the two villages. If responses from the villages were separated, different significant findings may appear.

Second, it is recommended that future research closely examine reasons underlying the selection of either the government or private doctors. As the study progressed, it was clear that villagers were consciously choosing between the two sources of care even when they were very poor. In this rural area, non-governmental care was a favored source of medical care. Additional qualitative information about why private doctors are chosen over government doctors would be useful to health planners at all levels of the health care system. It is suggested that health planners obtain this information and search for ways to integrate the private and government sectors to promote preventive as well as curative care.

The third recommendation takes into account the PHC philosophy that community participation, an empowering development strategy, and a multidisciplinary approach at grassroots levels are essentials to the widespread improvement of health care. These people articulated the need for less expensive, quality health care, and at the same time vocalized obvious barriers to well-being, including poverty, unemployment, illiteracy, and other political and environmental factors. Because unsafe water and poor sanitation procedures continue to cause disease and

contribute to nutritional deficiencies, it is recommended that villagers be provided information and procedures for improving water supply and sanitation. This type of program has been outlined in the WHO Minimum Evaluation Procedure (Timaeus, Harpham, Price, & Gilson, 1988).

Although the research did not address the topic of health education, it is the observation of the researcher that improvement in the health status of villagers will necessarily involve the provision of health education as well as additional medical services. Informal discussions with the men revealed that health education efforts may be well-received if introduced to the villagers by a community leader (such as the school headmaster or village chief) or health authority figure (such as a doctor or trained village health worker). It may be possible for staff members at the PHC sub-center in Marudur and the Farm Science Center to jointly conduct a health education program, thus combining expertise of both agencies. This would also provide an opportunity for advertising the services of the underused sub-center. It is suggested that both adults and children be included in educational sessions to be conducted through schools or among already existing social groups.

A fourth and final recommendation is that further research should be done that targets the role women have in the health care decision making process. This study reported that wives and husbands jointly arrived at family health care decisions, a fact that previously has been disregarded in research studies. If it is true, as this study has suggested, that women have a substantial role in the health care process, it is important that they be included in the decision making processes in the community, and at higher levels in the political process.

It was also observed by the researcher that although many women in this rural area were uneducated about basic health principles, their potential to improve the health of groups at risk (especially children) is substantial. The younger, more

educated women, in particular, were responsive, eager learners, expressive about what their families and communities need in terms of education and health care, and were anxious to organize their ideas and skills into health improvement strategies. It is recommended that these village women be asked to participate in health education, decision making, and income-generating workshops provided locally or possibly at the nearby Farm Science Extension, where staff and resources are already available. A conscious effort must be made to enable these women to be health educators and leaders in their own communities.

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APPENDICES

Appendix A

Village Health Survey

1989 OREGON STATE UNIVERSITY VILLAGE HEALTH SURVEY

"Hello, I am _____ from _____. I am helping with a study about health care in your village. I would like to speak with the wife of the head of the household, if she is at home now." (IF THE WIFE IS NOT AT HOME, ASK): "When would she be home? (RECORD BELOW AND CALL BACK)

(WHEN THE WIFE COMES TO THE DOOR, CONTINUE WITH): "As I said, I am _____ from _____. I am helping an American student from Oregon State University conduct a health survey of this village to study the medical and health facilities you use. We are working with the Avinashilingam Home Science University in Coimbatore. Your village has been chosen for this study, and I would like to ask you some interesting questions if you don't mind. The interview is voluntary and if we should come to a question that you don't want to answer, just let me know and we'll go to the next question. Your name will not be told to others and any complaints or grievances about the medical services will not be revealed. Shall we go ahead?

INTERVIEWER: RECORD DATE, TIME AND RESULT OF EACH ATTEMPT TO CONTACT IN THE TABLE BELOW. NOTE APPOINTMENTS IN THE TIME OF RECALL COLUMN.

Date	Time	Interviewer	Result Code	Time of Recall?

Make callbacks:

01 No answer
02 Busy
03 Not at home

Do not call back:

04 Language barrier
05 Refused
06 Ended midway
07 Other_____

08 COMPLETE

Household Address:

_____

_____

_____

Length of interview (in minutes) _____

TURN PAGE AND BEGIN INTERVIEW

VILLAGE HEALTH SURVEY

1. Some of the questions in this survey concern each person in your household, so we'd like you to list everyone who is living in your household now. Please give the first name of each person, the age, and relationship to you (for example, husband, son, friend, unrelated, and so forth), their marital status, and years of schooling. Please start with yourself. (RECORD NAME, AGE, GENDER, RELATIONSHIP, MARITAL STATUS, AND YEARS OF SCHOOLING FOR EACH HOUSEHOLD MEMBER. YOU MAY NEED TO PROMPT MARITAL STATUS AS: SINGLE, MARRIED, SEPARATED, DIVORCED).

NO.	FIRST NAME	AGE IN YEARS	GENDER: (M OR F)	RELATIONSHIP TO RESPOND.	MARITAL STATUS	YEARS OF SCHOOL
01				Self		
02						
03						
04						
05						
06						
07						
08						
09						
10						
11						

2. I have listed (READ ALL NAMES). Is there anyone I missed who usually lives here, but is now away from home? (CIRCLE NUMBER)

NO .(GO ON) 1
YES. 2
(GO BACK AND RECORD NAMES AND OTHER INFORMATION)

3. Please tell me, who is the head of this household? (INT PROMPT TO GIVE RELATIONSHIP)

HUSBAND. 1
SELF 2
OTHER (Specify) _____ 3
DK/NR. 4

Now I would like to ask you some questions about illness and the health services the family uses.

4. In some families one person takes more responsibility for the health care of the rest of the family than anyone else. Who usually makes decisions about the treatment for sick family members in your household?

RESPONDENT	1
HUSBAND	2
HUSBAND AND WIFE TOGETHER	3
OTHER (Specify)_____	4
DK/NR (INT:CIRCLE WHICH ONE)	5

5. I have here a list of people that some families see when they are ill. As I read each one, please tell me whether or not anyone in your family talked with or visited these people due to an illness or disease within the past 3 months.

	YES	NO	DK
a. An Ayurvedic doctor (Vaid)	3	2	1
b. A Unani doctor (Hakim)	3	2	1
c. A Siddha doctor	3	2	1
d. A government hospital (PHC center)doctor or nurse or medical assistant	3	2	1
e. Private practitioner for consultancy Where?_____	3	2	1
f. Private clinic, inpatient Where?_____	3	2	1
g. Medical shop Where?_____	3	2	1
h. Village health worker	3	2	1
i. Midwife	3	2	1
j. Spiritual healer	3	2	1
k. Other (Specify)_____	3	2	1

6. How long, in minutes or hours, does it usually take for you to get to a government hospital/doctor? (BE SURE TO CIRCLE MIN OR HRS)

(MIN) OR (HRS)	
DK/NR	99

7. From your point of view, is the location of the government doctor convenient or inconvenient?

CONVENIENT. . 3 INCONVENIENT. . 2 DK/NR . . 1

8. Are the hours when you can be seen by the government doctor convenient or inconvenient?

CONVENIENT. . 3 INCONVENIENT. . 2 DK/NR . . 1

9. How long in minutes or hours does it usually take for you to get to a private doctor? (CIRCLE MIN OR HRS)

_____
(MIN) OR (HRS)

10. From your point of view, is the location of the private doctor convenient or inconvenient?

CONVENIENT. . 3 INCONVENIENT. . 2 DK/NR . . 1

11. Which of the following means of transportation does your family use to travel to the nearest medical facility? Would it be by. .

1	2	3	4	5	6	7
Walking	Private Vehicle	Bus	Bicycle	Animal Cart	Other	Don't Know

12. Do you or family members ever consult the Mini-health Center in Marudur?

YES. 3
NO 2
DK/NR. 1

12 a. Why not?_____

13. In your opinion, who in your village knows the most about illness or disease?

NAME OF PERSON_____

POSITION IN VILLAGE_____

13a. How many times, if ever, have you gone to this person for advice in the last year?

NUMBER OF TIMES_____

INTERVIEWER: THE NEXT SET OF QUESTIONS ARE TO BE CODED FOR EACH OF THE 3 LISTED ILLNESSES. FOR EACH ILLNESS, ASK THE WIFE IF ANYONE IN THE HOUSEHOLD SHOWED THESE SYMPTOMS. IF "YES" THEN FOLLOW THROUGH WITH QUESTIONS B THROUGH L. IF "NO" OR "DK" THEN MOVE ON TO THE NEXT ILLNESS AND ASK ABOUT THOSE SYMPTOMS. USE THIS SHEET OF QUESTIONS AS A GUIDE FOR FILLING IN THE ILLNESS GRIDS.

14. I would now like to ask you about illnesses you or your household members have had recently.

A. Have any family members had any of these symptoms in the last 3 months?

IF YES: CIRCLE 3 MONTHS AND GO ON TO B
IF NO: ASK IF FAMILY HAD IN PAST 6 MO-1 YEAR
IF ANSWER IS AGAIN NO: CIRCLE NO AND GO TO NEXT ILLNESS
IF DON'T KNOW: CIRCLE DK AND GO TO NEXT ILLNESS

B. Who in your family had these symptoms? (RECORD NAMES AND FOR EACH MEMBER ASK QUESTIONS C THROUGH L)

C. What name is used for this illness? (RECORD)

D. What is believed to be the cause of the illness? (RECORD. MAY NEED PROMPT: WATER, ACCIDENT, DIRTY FOOD, FATE, ETC.)

E. How bothersome/troubling was this illness? Was it very bothersome, somewhat bothersome, or hardly bothered at all? (RECORD)

F. What was done about this illness? (MAY NEED PROMPT: WAS ANY TREATMENT, INCLUDING HOME TREATMENT TRIED? RECORD TREATMENT, AND/OR HEALER NAME, PLACE, MEDICINES, OR "NOTHING")

G. Please tell me why this (name of treatment) was chosen for the illness. (RECORD)

H. How much did this treatment cost? (RECORD)

I. Did this treatment help? (RECORD)

J. What was done next for the illness? (RECORD)

H. What was the final outcome of this illness? Was it cured or are you still seeking treatment? (RECORD)

IF CURED ASK NEXT QUESTION
IF STILL SEEKING TREATMENT, ASK WHAT THEY WILL DO

I. Who or what was it that cured the illness? (RECORD)

ARTHRITIS SYMPTOMS: Joint pains, swelling, stiffness in joints or

(A) When	(B) Who	(C) Illness name	(D) Cause	(E) Bothersome?
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all

(I) Helpful?	(J) What was done next	(K) Outcome
3 Yes 2 No 1 DK		2 Cured 1 Not cured
3 Yes 2 No 1 DK		2 Cured 1 Not cured
3 Yes 2 No 1 DK		2 Cured 1 Not cured

PRIMARY COMPLEX SYMPTOMS: Chronic diarrhea, fever, cold, cough, loss

(A) When?	(B) Who	(C) Illness name	(D) Cause	(E) Bothersome?
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all

(I) Helpful?	(J) What was done next	(K) Outcome
3 Yes 2 No 1 DK		2 Cured 1 Not cured
3 Yes 2 No 1 DK		2 Cured 1 Not cured
3 Yes 2 No 1 DK		2 Cured 1 Not cured

stiffness in limbs

(F) What was done	(G) Why chosen	(H) Cost

(L) Who or what cured/comments

of appetite, weight loss

(F) What was done	(G) Why chosen	(H) Cost

(L) Who or what cured/comments

WORM INFESTATION SYMPTOMS: chronic diarrhea or dysentery, lethargy,

(A) When	(B) Who	(C) Illness name	(D) Cause	(E) Bothersome?
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all
3 3 mo 2 6 mo-yr 1 No/DK				3 Very 2 Somewhat 1 Not at all

(I) Helpful?	(J) What was done next	(K) Outcome
3 Yes 2 No 1 DK		2 Cured 1 Not cured
3 Yes 2 No 1 DK		2 Cured 1 Not cured
3 Yes 2 No 1 DK		2 Cured 1 Not cured

OTHER ILLNESSES: DISCUSS CAUSES, TREATMENT, OUTCOME AND ANY DETAILS BELOW. USE ONE HORIZONTAL GRID FOR EACH ILL FAMILY MEMBER.

Name	

abdominal pain

(F) What was done	(G) Why chosen	(H) Cost

(L) Who or what cured/comments

15. Here is something different. I am interested to know what changes you think will improve the health of the village people. I will read some statements that have been made about village health care. I would like to ask each of you women about whether you agree or disagree about each statement. (THE CODING BELOW IS AS FOLLOWS: A=AGREE; D=DISAGREE; N/O=NO OPINION. RECORD SEPARATELY THE RESPONDENT'S VIEWS AND THOSE OF THE OTHER WIFE, IF SHE IS PRESENT)

	RESPONDENT			OTHER WIFE		
	A	D	N/O	A	D	N/O
a. It is important for all of the villagers to be educated about diseases and illnesses.	3	2	1	3	2	1
b. Our traditional (local) healers need more scientific training in curing diseases	3	2	1	3	2	1
c. Allopathic doctors need to know more about traditional medicine and treatments	3	2	1	3	2	1
d. Our village needs a (more) trained village health worker(s).	3	2	1	3	2	1
e. Village health workers should be local people.	3	2	1	3	2	1
f. Village health workers should come from outside this village. . .	3	2	1	3	2	1
g. Allopathic health services and medicines should cost less	3	2	1	3	2	1
h. If government health services were closer (more convenient), my family would use them more often. .	3	2	1	3	2	1
i. Most women would feel more comfortable seeing a female doctor rather than a male doctor when they need medical care	3	2	1	3	2	1
j. Some illnesses are cured better by allopathic doctors and others are cured better by local healers or doctors of Indian medicine . . .	3	2	1	3	2	1

Can you provide some examples?

Allopathic: _____

Local/Indian: _____

I would now like to ask you a few questions about yourself and your family.

16. Have you or other women in the family attended other kinds of school, for example, on campus training programs, adult literacy classes, or classes with other women?

NO 2
YES (Specify)_____ 3
DK/NR. 1

17. What is the family religion? (CIRCLE ONE)

1 HINDU 2 MUSLIM 3 OTHER_____

17a. To what caste does your family belong?

CASTE_____

Finally, I have some questions about what your household owns and about your work.

18. First I'll ask about the animals you may own. As I read each type of animal, please tell me if your family owns these animals.

	YES	NO	DK
a. Cows/bulls	3	2	1
b. Buffalos	3	2	1
c. Pigs	3	2	1
d. Goats.	3	2	1
e. Chickens	3	2	1
f. Ducks/geese. . . .	3	2	1
g. Other (Specify) _____	3	2	1

21. Next, please tell me if any of these items are owned by your household members.

	YES	NO	DK		YES	NO	DK
a. Bullock cart .	3	2	1	j. Gas cooker. . .	3	2	1
b. Car/vehicle. .	3	2	1	h. Smokeless chulah	3	2	1
c. Motorcycle . .	3	2	1	i. Hay box	3	2	1
d. Bicycle. . . .	3	2	1	j. Mud cooler. . .	3	2	1
e. Television . .	3	2	1	k. Table/chairs. .	3	2	1
f. Radio	3	2	1	l. Electric bulbs.	3	2	1
g. Sewing machine	3	2	1	m. Electric tubes.	3	2	1
h. Electric iron.	3	2	1	n. Camera.	3	2	1
i. Electric fan .	3	2	1				

FOR THE NEXT GROUP OF QUESTIONS, FILL IN THE GRID BELOW.

20. What is your usual work activity? (RECORD)

21. Do you have other work as well (RECORD) IF YES, ASK TO SPECIFY.

22. What is the usual work activity of the head of the household? (RECORD)

23. Does he have other work that he does? (RECORD AND SPECIFY)

NAME	USUAL WORK	OTHER WORK			WHAT TYPE
		YES	NO	DK	
RESPONDENT		3	2	1	
HEAD		3	2	1	

24. How much is your family income in one month?
RUPEES/MO_____

25. Does your household own this house?
YES. 3
NO 2
DK/NR. 1

26. Finally, does your household own land?
NO 2
DK/NR. 1
YES. 3

26a. About how many acres does your household own?

ACRES_____

27. Is there anything else you would like to say about health services in your village?

Thank you very much for your cooperation!

Appendix B

Layperson Interview

1989 OREGON STATE UNIVERSITY LAYPERSON INTERVIEW

My name is _____ from _____. I am helping an American student from the Oregon State University conduct a study about the health care of people in several villages in the Karamadai District. We are working with Avinashilingam Home Science University in Coimbatore. We are interested in learning about the types of health care families use when they are sick. We would also like to talk with you about what you think will improve the health of the village people. The interview is voluntary and if we should come to a question that you don't want to answer, just let me know and we'll go on to the next question. Your name will not be used in the study and any complaints or grievances about the medical services will not be told to others. Shall we go ahead?

---

1. DESCRIPTION OF PARTICIPANT _____

2. VILLAGE/LOCATION _____

3. INTERVIEWER _____

4. a. Please tell me how old you are _____

   b. Where were you born? _____

5. a. Over the years have you enjoyed good health? _____

   b. To what do you attribute your good (or poor) health?

6. How long have you lived in this village? _____

7. a. When family members are sick, who usually decides what treatment should be used, or what doctor/healer should be consulted?

   b. Who usually takes care of the sick people in the family? Is this the same person that makes the decision about treatment?

   c. Was this the same in the family in which you grew up?

8. What do you think are the biggest health problems in your village?

9. Do you believe that certain kinds of illnesses are better treated by government doctors or allopathic doctors rather than local healers or doctors of Indian medicine?

   Can you give me some examples?

   ASK WHY THESE ILLNESSES MUST BE TREATED BY CERTAIN PRACTITIONERS. ASK IF THEY HAVE A STORY TO RELATE ABOUT THIS.

10. How have treatments for arthritis, primary complex, and worm infestation (or others mentioned) changed in the past ten years? (What used to be done, and what is usually done now?)

11. Would you like to become a Village Health Worker?_____
    Why or why not?

12. In your opinion, what can the Government of Tamil Nadu do to help your people improve their health and provide better treatments for illness? (EX. MORE HOSPITALS & FACILITIES, IMMUNIZATIONS, HEALTH ED, CLOSER FACILITIES)

13. a. Do you think villagers should receive more education about illnesses and how to prevent them?_____

    b. If so, what would be the best way to educate people?

13. What can the village people do to improve their own health and eliminate some of the health problems we have talked about? (EX. BETTER NUTRITION, WATER TREATMENT, IMMUNIZATIONS, COMMUNITY ORGANIZATION)

14. Do you have any comments you would like to add?

Appendix C

Practitioner/Healer Interview

1989 OREGON STATE UNIVERSITY PRACTITIONER/HEALER INTERVIEW

My name is _____ from _____. I am helping (or I am) an American student from Oregon State University conduct(ing) a study about the health care of people in Marudur and Bilichigoundenur. We are working with Avinashilingam Home Science University in Coimbatore. We are interested in learning about the types of health care families use when they are sick. Some people have told me (us) that they came to you. We would like to talk with you about the help that you provide to people. We would also like to ask you about what you think will improve the health of the village people. The interview is voluntary and if I (we) come to a question that you don't want to answer, just let me know and I'll (we'll) go on to the next question. Your name will not be used in the study and any complaints or grievances you have about the health care system will be held in confidence. Shall we begin?

1. TYPE OF HEALER/PRACTITIONER (Ex. Allopathic doctor, Ayurvedic, healer)_____

2. VILLAGE/LOCATION _____

3. INTERVIEWER _____

4. Please tell me how old you are_____

   Where were you born? _____

5. When did you first become a doctor or a healer?(CIRCLE WHICH ONE)

6. How long have you been helping people this way?

7. Where did you go to learn how to be a doctor or to help people?

8. What kind of training did you have? (What did you have to do to become a healer?)

9. a. How long did you study?_____

   b. Are you still studying or learning new ways of healing?_____

   c. What might this be?

10. Can you help people who have any of the following problems?

    a. Headache _____

    b. Diarrhea _____

    c. Nightmares _____

    d. High blood pressure _____

    e. Tuberculosis or Primary Complex _____

    f. Arthritis _____

    g. Worm infestation_____

    h. Malnutrition _____

    i. Want to become pregnant _____

    j. Want to prevent pregnancy_____

13. What is usually wrong with the people who come to you for help?

14. a. What kinds of things can you do to help them? (i.e. give medicines, make medicines for drinking, injections, offer prayers)

    b. What procedures do you use to cure?

15. a. If you give medicines (or injections) where do you get them?

    b. Do you make them yourself? _____

    c. Do you buy them at the medical shop or chemist?_____

    d. Other sources of medicine:

16. If I was sick with arthritis (or an illness this healer treats) and came to you for help, how much would it cost?

17. When a person pays you for your help, is she/he paying for the medicines, or is he paying for your advice?

18. What people in the village come to you for help? Are they mostly women, children, men, older persons?

19. About how many people come to you for treatment each week?_____

20. Where do you go for treatment when you are ill?

21. Do you believe that certain kinds of illnesses are better treated by allopathic doctors rather than local healers or doctors of Indian Medicine?

    Can you give me some examples?

22. Would you like to have more training as a healer (doctor)?_____
    If so, what kinds of things would you like to learn to do?

23. (FOR HEALERS AND MIDWIFE ONLY) Would you like to become a Village Health Worker?_____
    Why or why not?

24. What are the biggest problems that you have as a healer or a doctor?

25. In your opinion, what can the Government of Tamil Nadu do to help you become a better doctor/healer? (EX. TRAINING, FACILITIES)

26. What can the Government of Tamil Nadu do to improve the health of village people? (EX. MORE HOSPITALS, IMMUNIZATIONS, HEALTH ED)

27. What can the village people do to improve their own health and eliminate some of the common diseases we have talked about? (EX. BETTER NUTRITION, WATER TREATMENT, IMMUNIZATIONS)

28. What would be the best way to inform people about illness prevention? (EX. GOVT.TEACHING CENTERS, PATIENT INFO., SCHOOLS)

29. Do you have any comments you would like to add?